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ZIMBABWE  
AGRICULTURAL  
**SECTOR  
SURVEY**



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## FOREWORD

The third annual agricultural sector survey has continued the pertinent need for accurate and useful data in the agricultural sector. The objective of the survey remains twofold: (1) to complement current public and private sector efforts towards reviving agriculture, and (2) to initiate, instil, strengthen and sustain a culture of data-based farming, policy making, and investments. The annual survey continues to gather sector-wide, in-depth, objective, authoritative and independent data on agriculture, agribusiness, machinery, equipment, irrigation, climate change, investment, markets and comparative data from regional economies, to inform our stage of growth, highlight our challenges, and illuminate opportunities in agriculture. With such high level information, the development of the agricultural sector can only be enhanced.

The past agricultural season has been a tough one due to the COVID-19 pandemic which disrupted not only production but also some of our traditional export markets. The impact of such shocks in our agricultural system needs to be illuminated to enhance future policy making and preparedness for such eventualities. The need for data and its impact on not just the farmer but all supporting industries becomes even more imperative in such an environment where uncertainties abound.

We wish to thank all those who supported the survey by providing information. We hope the results can open new windows of opportunity for your businesses. It is imperative that these are seized upon timeously as the environment remains dynamic beyond just the pandemic. New technological developments mean the transfer of information is much easier and opportunities will be seized by the agile players. We hope readers will find the survey useful as a farming and planning tool for the development of the agricultural sector, which is pivotal to our aspirations as a nation. The good rains last season have shown the great potential in agriculture and how it can play a pivotal role in Zimbabwe attaining an upper middle class economy by 2030.

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## 1. INTRODUCTION

The 2020/2021 season had its own challenges, the major one being the Covid-19 pandemic, which affected farming and any other business in the country. Since the turn of the new millennium, Zimbabwe's agricultural output has remained subdued resulting in the country consistently spending in excess of US\$1 billion on agricultural imports annually. Likewise, because 70% of raw materials used in the manufacturing sector are supplied by the agricultural sector, the industry has been largely fed by imports, thereby exerting pressure on foreign exchange.

In view of this, the Zimbabwe Agricultural Society, The Financial Gazette and Commercial Bank of Zimbabwe commissioned Africa Economic Development Strategies to undertake a comprehensive survey of the agricultural sector in Zimbabwe. The report, *inter alia*, is expected to unpack the following:

- Trends in crop and livestock production;
- The state of infrastructure in the agricultural sector;
- Agricultural production indices;
- Financing options for increased agriculture production;
- The impact of climate change on agricultural production;

To address the objectives above, various methodological approaches ranging from interviews in eight (8) farming provinces and their respective districts, key informant interviews, focus group discussions and desk research were undertaken. Stakeholders consulted *inter alia* included farmers, banks, Grain Marketing Board, Ministry of Agriculture, companies in various agricultural value chains, Agritex officers and business associations.

The significance of this report is centred on the fact that it acts as a dashboard on the status of Zimbabwe agricultural sector as it provides the state of affairs of the agricultural sector and showcases opportunities for investors.

## 2. Presentation of Findings

Key findings, in line with the various thematic areas, are as follows:

### (a) Trends in Crops Production

The country produced 2,7 million metric tons of maize in the 2020/2021 season as compared to 908 metric tons produced in the 2019/2020 season. On a refreshing note, national average yield per hectare rose 0,54 metric tons in the 2019/2020 season to 1,4 metric tons in 2020/2021 season. However, the country witnessed a staggering 5 metric tons per/Ha maize in terms of maize yield from the Pfumvudza programme. On a provincial comparison, Mashonaland West and Mashonaland Central, combined, contributed to 50,7% of total maize output produced in 2020/2021. Likewise, the same provinces had the highest yield per hectare which averaged at 2,35MT per hectare. The contribution of other provinces to national maize output are; Mashonaland East (15%), Midlands (11,1%), Manicaland (10,9%), Masvingo (4,9%), Matabeleland North (4,2%) and Matabeleland South (3,2%).

Of interest to note is that yield per hectare, at 0,54MT in Masvingo was the lowest in the whole country yet the same province had 12% of the land under maize production.

**It can be therefore be concluded that from a policy perspective, placing more emphasis on maize production in Masvingo is a policy misstep. Rather, in view of the harsh climatic conditions prevalent in this province, more emphasis must be placed on traditional/small grains.**

**In view of this observation, there is a strong business case for the government of Zimbabwe to expand the Pfumvudza Programme to include more farmers especially in provinces such as Masvingo, Matabeleland North, Matabeleland South and parts of Manicaland and Midlands which are drought prone.**

In the 2020/2021 season, sorghum production increased by 135%, that is, the country recorded sorghum output of 244 063MT from 103 684MT in the 2019/2020 season. This increase is attributed to the increased total amount of rainfall received that was well distributed as well as the climate proofed Pfumvudza/Intwasa technologies employed.

Like maize and sorghum, pearl millet production increased by 132% in the 2020/2021 season from 39 032MT to 90 683MT. Likewise, yield also increased

by 82% from 0,23T/ha to 0,42T/ha. Stakeholders interviewed underscored that the increase is attributed to the high amount of rains received across the country accompanied by good distribution between November 2020 and end February 2021.

Finger millet production increased from 9 799MT in the 2019/2020 season to 13 223MT, in the 2020/2021 season reflecting a 35% increase. Farmers and key informants interviewed underscored that better rainfall patterns which were witnessed in the 2020/2021 season propelled the production of finger millet.

On the back of the good rains in the 2020/2021 season, in comparison with the 2019/2020 season, sweet potato production in the 2020/2021 season increased sharply by 269%. The major producers of sweet potatoes in the 2020/2021 season are Masvingo province (111 269MT), Mashonaland East province (94 935MT), Manicaland province (78 717MT), Midlands province (47 722MT) and Mashonaland West province (43 945MT).

Cotton production is estimated at 195 991MT, an increase of 94% compared to the 2019/20 season. The increase is attributed to the above normal rainfall received as well as the Presidential input support programme.

Major contributors to national cotton production have traditionally been Midlands province (67 180MT), Mashonaland East province (38 492MT), Masvingo province (29 441MT) and Mashonaland West province (28 469MT).

Tobacco production is expected to increase by 8% from 184 042MT produced last year to 200 245MT in the 2020/2021 season.

On the back of a good rainy season, groundnut production increased by 139% from 87 498MT to 208 864MT. This is a refreshing observation considering the fact that Zimbabwe spends a significant amount of money in importing groundnuts. This surge in production is anticipated to significantly reduce the import bill. With a combined contribution of 64% to the total national production of groundnuts, Mashonaland Central (24,4%), Mashonaland Central (20,4%) and Midlands (19,2%) were the major producers of groundnuts in the 2020/2021 season (see table 3.5). In terms of productivity, Mashonaland West and Mashonaland Central registered yields of 1,1MT and 1,5MT per hectare while Masvingo and Matabeleland North respectively registered yields of 0,43MT and 0,47MT per hectare.

Estimated roundnut production increased by 59% from 23 832MT in the 2019/2020 season to 37 156MT in the 2020/2021 season. The increase is attributed to increased rainfall which was well distributed throughout the greater part of the season. Masvingo province, with 12 670MT of the 37 156MT was the major contributor of roundnut production in Zimbabwe. Other significant contributors are Manicaland province (7 069MT), Midlands province (6 327MT) and Mashonaland East Province (4 250MT).

On sugar beans, the survey showed that production increased by 142% from 12 650MT in the 2019/2020 season to 30 613MT in the 2020/2021 season. Major contributors of sugar beans production are Mashonaland West province (9 709MT), Mashonaland Central province (7 278MT), Mashonaland East province (6 615MT) and Manicaland province (4 329MT). When combined, these four provinces contributed 91,2% of the total sugar beans produced in the 2020/2021 season. Interviewed farmers underscored that the increase in production and the associated increase in yields per hectare as compared to the 2019/2020 season was as a result of the good rain season.

Soya bean production increased from 47 088MT in the 2019/2020 season to 71 290MT in the 2020/2021 agriculture season. Although this is a notable improvement, the 2020/2021 soya bean output is still far below the national requirement of 240 000MT per year.

In the 2020/2021 farming season, sunflower production increased sharply by 269% from 9 447MT in 2019/2020 to 14 198MT in the 2020/2021 farming season. Farmers interviewed underscored that the surge in sunflower production was as a result of increased government support and above normal rainy season.

Of interest to note, the study noted that the production of cash crops such as tea, macadamia, sugar cane and tobacco witnessed progressive growth because they are largely funded by the private sector through contract farming, notwithstanding the fact that farmers lack collateral security.

Ironically, the study shows that production of crops such as wheat and soybeans remain low because of the price controls, since the government sets prices on these commodities.

Interest was also high in one of the new crops cannabis (mbanje) which is now



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being grown for medicinal value. A major result to note is that there are about 57 farmers licensed to grow the crop, but the value of output has not been reported.

**Lessons derived here are that deregulation of the markets allows efficient price discoveries and guarantees positive returns which results in crowding in of the private sector as noted in the production of tobacco, bananas, tea and sugar cane, notwithstanding the fact the same farmers have no collateral.**

**It can, therefore, be argued that the most effective form of collateral in the farming sector is a guaranteed free market system and creation of an enabling business environment by the government.**

#### (b) Trends in Livestock Production

The livestock sub-sector is an important and integral part of the agricultural sector with beef, dairy, small ruminants, pigs, poultry, apiculture, aquaculture and other small and emerging stock such as rabbits making up the livestock industry. The sub-sector contributes about 19% to the agricultural GDP (Ministry of Agriculture, 2020).

Evidence from research shows that cattle production remained flat around five (5) million herds since 2001, this could be partly attributed to the outbreaks of foot and mouth (FMD) and other diseases that were identified as a serious threat to the complete recovery of the cattle herd. Table 4.2 shows the distribution of cattle ownership by farmer group indicating that 69% of the cattle in Zimbabwe are owned by small scale rural farmers, 11% by A1 farmers, A2 and large scale commercial farmers own a combined 10%, old resettled farmers own 6% while small scale commercial farmers own 4%.

Interestingly, the survey shows that small scale farmers and communal farmers with a combined share of 90% of the total national cattle herd have an average slaughter rate of 5% of total head per year. The low slaughter rate is attributed to communal farmers, in particular, with 69% of the total herd who keep cattle as a store of wealth and not for slaughtering. Small scale farmers are not sweating the value of their assets something which could happen if they treated livestock as an enterprise. This observation is similar in other animals such as goats, sheep and pigs kept by small scale farmers.

With this low slaughter level, it means that income is not circulating in the rural areas and poverty levels are anticipated to remain high. This observation, if not reversed, will hinder the country's progress towards attaining Vision 2030 considering the fact that around 70% of the Zimbabwe population resides in the rural areas.

Animals such as goats and sheep were observed to be effective in providing coping strategies particularly in dealing with climate change vulnerabilities in drought prone areas such as Masvingo, Manicaland and the Matabeleland region.

On milk, in 2020 the country's milk production declined by 4% to 76,7 million litres (see table 4.3). At 76,7 million litres per year the country is far short of the 120 million which is required to meet the national demand.

With respect to broiler production, the following were observed:

- Overall day old chick production decreased by 2.5% from 73,4 million in 2019 to 71,4 million in 2020
- Broiler meat production decreased by 2% from 114 300 tons in 2019 to 111 600 tons in 2020
- Small-scale broiler production continued to dominate production accounting for 73% of the total broiler meat produced
- The Covid-19 pandemic heavily affected poultry in 2020. The Covid-19 movement and curfew restrictions resulted in low uptake of day old chicks and restricted marketing of finished broilers and eggs.
- A total of 670 084 chicks were gassed in 2020 compared to 91 079 chicks in 2019 and this is mainly attributed to the Covid-19 pandemic restrictions

With respect to fish production, the study noted that there has been a decline in fish production over the past two years. Notable declines were in Kapenta catches from 10 366MT in 2017 to 6 000MT in 2020 attributed to overfishing on Lake Kariba. The farmed Tilapia has remained stable largely because of the entry of many small players. Of concern is the fact that fish production at Lake Harvest has gone down significantly from a peak of 10 000MT in 2013 to 3 500MT in 2020.

#### (c) Assess role of Financing options in the Agricultural Sector

International experience, as noted by FAO (2017), shows that there is a positive causal relationship between access to finance in the agricultural sector and agricultural productivity.

The survey shows that since 2009, national budget allocations to agriculture as a share of total budget averaged at 6,5%. The share of agriculture in the national budget allocations has remained low, less than African Union's Maputo declaration target of at least 10% except in 2010 when it reached 14%. From this analysis, it is clear that the country has failed to meet the regional benchmark set by the Comprehensive Africa Agricultural Development Programme (CAADP) of a minimum 10% of total budget set aside for support in the agricultural sector. Globally, Zimbabwe's budget allocation to the agricultural sector is far below the European contribution of 38% which is provided under the Common Agricultural Policy (CAP).

Forms of funding available to farmers established by the study inter alia include smart agriculture/command agriculture, pfumvudza programme, bank loans, contract farming, joint venture, presidential input scheme, donor funding and self-funding

In 2020, based on interviewed farmers, major sources of funding are contract farming (20%), self – funding (20%) and pfumvudza programme (15%). Notably, the popularity and contribution of funding to the agricultural sector was noted to be falling.

Our research showed that a significant amount of funding was directed towards inputs support, that is, 55% of total resources channelled towards the 2020/2021 season. In going around the risks of abuse of funds, funders provide the actual inputs (chemicals, seeds and fertilisers) instead of giving the farmer the money. Due to high demand for irrigation, some funders are funding irrigation infrastructure in the form of Centre Pivots.

Our study shows that in 2020 the majority of financial institutions interviewed, that is, 87%, are spending less than 10% of their funding on agriculture. Likewise, 17% of the interviewed banks showed that 21-30% of the loan book was funding the agricultural sector. This rise, as noted from the study, was driven by the contribution of smart agriculture and its causal effect amongst banks as they crowd in to fund the agricultural sector.

**The study noted that where contract farming was used, the contracting company became the aggregator and on the back of the strength of its balance sheet has been able to access funds for the farmers who have no collateral. This has resulted in the elimination of the challenges related to security of tenure.** This observation was largely noted in the tobacco, sorghum by the food and beverages sectors and contract broilers production. However, one key feature which enabled the enhancement of these value chain financing models relates to the business environment in these sectors. For example, in the tobacco sector, the crop is sold under an auction system which allows for efficient price discovery and unlike soya bean, maize and wheat whose market is price-controlled.

#### (d) Unpack the Impact of Climate Change on Agricultural Production

In line with the observations of FAO (2016; 2017) on the impact of climate change on agricultural output, the research shows that climate change vulnerability negatively impacted productivity in the agricultural sector. The majority of stakeholders interviewed, that is, 98% confirmed over years climate change has a significant impact on agricultural productivity. Extreme weather patterns affect crop productivity as high temperatures or excessive rainfall have an adverse effect on both crop and livestock production and productivity. Respondents interviewed highlighted that the rain season in Zimbabwe is no longer falling in the gazetted months and that affects the farmers' planning calendar as the actual planting and stalk destruction dates for crops such as tobacco and cotton no longer match with government's legislated dates.

On a refreshing note, all the stakeholders interviewed confirmed that the 2020/2021 season had effective and good rain patterns which contributed to the best agricultural season since 2001 if the statistics on yields and output are anything to go by.

#### (e) Production Indices

Crop production and livestock indices were estimated with a view to estimate efficiency in the agricultural sector in Zimbabwe.

### Crop Production Indices

The crop production indices were calculated based on the average yield figures. As noted by FAO (2016), the index or ratio may be easily calculated based on year to year improvements or based on the selected base year for benchmarking or comparison. According to FAO (2016), any percentage below 100% means there is negative growth for the current period compared to the previous period.

Based on the FAO methodology, agriculture output was 299,37% of the previous season, reflecting a positive growth of 199,37% in 2020/21 season from the 2019/20 season. This was mainly attributed to the bumper harvest of major crops such as maize and other cereal crops. In terms of the study, crop production in the 2020/21 season based on the 2016/2017 season as a base year, agriculture production was 145,3% showing a positive growth of 45,3%. Base on national requirements, output was 170,53%, reflecting that there is a surplus of about 70,53%. government can build on this surplus to build its strategic reserves.

### Zimbabwe Livestock Production Ratios

Calving rate figures observed were between 32% and 50% with an overall national average of 40% for 2020/2021 which demonstrates positive improvements from 2019/20 seasons which ranged from 22,9% and 38,7% with an average of 33,37%. The national average is currently between 33 and 45% across different farm sectors.

The national average calving rates remain very low against a national target of above 60%. The low calving rates are attributed to several aspects affecting the farmers which are: the previous drought leading to poor nutrition and poor-quality bulls; low bulling ratios in the smallholder sector also present challenges for those farmers who do not own bulls; and multiple use of cows including as draft power affects body condition hence low fertility rates for rural animals.

### (f) GAPS and Opportunities

One of the objectives of the survey was to establish what could present itself as a problem in the sector and turn it into an opportunity for businesses.

From crop and livestock production perspectives, because the country imports around US\$1 billion per year in cereals (US\$500 million), soybeans (US\$250 million), fruit and vegetables (US\$200 million) and a significant value of eggs, meat and milk (International Trade Centre, 2020). This presents itself as a classical opportunity for investors since there is an established demand for these commodities.

Secondary sources have shown that the country has massive deficits in tractors (30,000), combined harvesters (400), rippers (13,800), disc harrows (8000), planters (17,800), spreaders (4,500), boom sprayers (4,000) and shellers (14,500) which presents opportunities for private sector to invest in or bank to offer lease finance.

### (g) State of Agricultural Infrastructure

One of the objectives of the survey was to review the state of infrastructure relevant for the Agriculture Sector in Zimbabwe. In this regard, road network infrastructure relevant and being used by farmers in Zimbabwe, dam infrastructure and irrigation facilities and smallholder irrigation schemes in their relevance to rural poverty alleviation in the country were reviewed.

#### Road Infrastructure in Zimbabwe

Notable achievements have been seen in major highways' reconstruction and resurfacing. However, of major concern to farmers are tertiary roads which are about 70% of the total road network. These are feeder and access roads that link rural and farm areas to the secondary road network. These are managed by the District Development Fund (DDF) and by the District Councils (DC). The tertiary access roads, together with the unclassified tracks, typically with traffic volumes below 50 vehicles per day, provide for the intra-rural access movements. These are critical as they link rural and farming communities to social economic amenities, such as schools, health centres, and markets, and enable government services to reach rural areas.

#### Dam Infrastructure in Zimbabwe

There are 10 748 dams, including 260 large ones (World Bank, 2019). Only 850 of them were constructed by the government, and their permits are owned by the Zimbabwe National Water Authority (ZINWA). The remainder are private dams which are small ones (AfDB, 2019). The term "dam" is often preferred to signify small water bodies/reservoirs.

The survey noted that nearly half of the small water bodies in Zimbabwe are within the size range of 1-5 hectare. Of the 10 747 water bodies in Zimbabwe, 4 875 (61%) are situated in commercial lands, used for cattle ranching, irrigation or aquaculture. The communal and resettlement areas account for 39% of the dams and cover 40% of the total area. Dams in communal areas are slightly larger in average size. Most dams are along the highveld of the country from the southwest to the northeast.

### Irrigation Infrastructure in Zimbabwe

Irrigation infrastructure is now critical in order for Zimbabwe to regain its status of the bread basket of Southern Africa. The country is undergoing extensive irrigation rehabilitation and development in both large- and small-scale sectors as a result of climatic constraints, including periodic mid-season drought and recurrent seasonal droughts, which make dryland cultivation a risky venture and the need to be self-sufficient in food production.

In terms of types of irrigation systems, sprinkler irrigation dominates, followed by centre pivots, then flooding/canal, drip and others. These other forms of irrigation include the **informal/traditional irrigation** is practised in an estimated 20 000ha of wetlands/inland valley bottoms (dambos) and small gardens by many rural families. Vegetables are produced during the wet and dry seasons. Usually, irrigation is done with buckets/cans from hand dug shallow wells.

In terms of smallholder irrigation systems, 80% of more than 10 000ha smallholder irrigation area is under surface irrigation, water being drawn from rivers, storage reservoirs, weirs or deep boreholes is supplied through constructed canals. However, there is now a significant increase in Centre Pivots and sprinkler irrigation in these smallholder schemes through government and development partners funding.

Of the schemes that were surveyed, a large proportion had broken down pumping units. Some of the major reasons for non-functionality include outstanding field maintenance, electrical faults/break down of transformers', seasonality of water source due to droughts, vandalism and poor leadership. Maize dominates as the most crop grown, followed by sugar beans and vegetables. The dominants of these crops are associated with size of the land as they range between 0,5hectare to 1,5 hectares per beneficiary.

### Dip Tanks

About 3 837 dip-tanks are available in the country. Of these dip tanks about 2 489 require minor repairs for them to be fully functional and about 46 are non-functional and they require major repairs. Farmers interviewed revealed that the dipping of animals has improved in 2021 and the government has been putting all efforts in dipping animals. Of those rehabilitated dip tanks, it is critical to acknowledge the work of Development partners in the rehabilitation of **238 dip tanks** across the country. It is also noted that of the functional dip tanks, some of them have perennial water challenges. **About 658** dip tanks have perennial water challenges in the dry season starting from July onwards in Zimbabwe. Farmers interviewed revealed that, during the dry season, they face dipping challenges and the cattle for months with being dipped.

### (h) EASE OF DOING BUSINESS IN AGRICULTURE

Farmers and key stakeholders reveal that lack competitiveness in the export market due to the high cost of production due to high compliance costs, high labour cost, high transport cost, high electricity cost, vandalism and theft of equipment and competition from cheap imports are some of the factors affecting the sector. Due to high cost, farmers sometimes end-up having low yields and low - quality produce. Retailers impress upon high quality and failure to meet required quality products are returned to the farmer or are bought at very low prices. Quality is rated on with due considerations on standard, size, presentation and packaging and failure to meet the minimum expectations the farmer makes a loss. In an effort to improve quality and yield agronomy agencies and field agronomists are engaged mainly by retailers and contractors to train farmers on soil quality, seasonal products and market conditions.

### (i) AGRICULTURE SECTOR PRODUCE MARKETS IN ZIMBABWE

Our assessment shows that the bulk of agriculture produce is sold at local markets. There is evidence that contractors are doing a great job to improve agriculture production through provision of inputs, knowledge, markets and financing of farming activities. Farmers interviewed cited huge losses during transportation to the markets as a result of poor road networks, losses

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from price undercuts by middlemen both at market and farm premises. For vegetables, farmers interviewed, in many cases, failed to get better returns from markets as they will be flooded with the products and they end-up getting lower prices. It is recommended that farmers should produce based on markets demands in order to minimize losses.

## 2. Policy Recommendations and Strategic Measures

### (a) Addressing Binding Constraints in Crop Production

Central to low production in the crops sub sector is climate change, drought of funding, price controls and poor farming practices. In dealing with these constraints, the following measures are suggested:

- In dealing with climate change vulnerabilities, one effective way which has been adopted by the United Nations Framework Convention on Climate Change to compact climate change is the adoption of climate-smart agriculture which aims at sustainably increasing food security and incomes and adapting and building resilience to climate change. Climate – smart agriculture connects other innovations, such as conservation agriculture, agroecology, agroforestry and the development of crop varieties that are more tolerant to pests, diseases, drought, waterlogging and salinity (FAO, 2013). FAO (2017) noted that climate-smart agriculture has promoted mixed crop-livestock systems and sustainable livestock production, which integrate environmental and production objectives through, for example, the rotation of pasture and forage crops to enhance soil quality and reduce erosion, and the use of livestock manure to maintain soil fertility. In climate-smart agriculture, agroforestry systems are an important means of sustainably producing food while conserving ecosystems, especially in marginal areas prone to environmental degradation. Zimbabwe can work with development partners who are already working with farmers in Zimbabwe in compacting climate change through climate smart agriculture. Zimbabwe has adopted the Pfumvudza concept to fight the effects of climate change and increase yield.
- The government must include grains such as maize, soya bean and wheat into the commodity exchange trading platform. Because it comes with warehouse receipting systems and derivatives, a commodity exchange can also assist in unlocking funding into the agricultural sector as witnessed throughout the African continent.
- However, under the current trading regime, the government may need to allow third parties to pay immediately for grain delivered to GMB at a discount to farmers. In this manner if a farmer delivers maize to GMB and gets a delivery note s/he can take that delivery note to authorised third parties who then pay at a discount say ZWL30,000/ton. The third parties will then wait for the full payment from GMB and pocket the profit. This cushion farmers from delays in payments.
- Subject to the dictates of Statutory Instrument 145 of 2019, Grain Marketing (Control of Sale of Maize) Regulations 2019 enabled by The Grain Marketing Act [Chapter 18:14], maize is a controlled product in terms of section 29 of the Act. Nonetheless, Section 5. (1) of SI 145 stipulates that no individual or corporate shall sell maize except to a contractor or to the Grain Marketing Board. Section 6. (1) of the same instrument also prohibits individuals or corporates to buy or otherwise acquire maize from farmers other than through GMB. These sections of the instruments indicate that authorised entities which contracted the production of the maize can buy the crop but only through GMB. This means contractors like CBZ Agroyield can take part in this initiative. This cushions farmers from “makoronyera” who are buying maize for as low as ZWL24,000/ton from farmers and then deliver to GMB for ZWL32,000.
- Training of farmers on best farming practices is key and this requires capacitation of Agritex officers.
- Educating farmers on agribusiness models such that they consider agriculture as a business and not for subsistence.

### (b) Addressing Binding Constraints in Livestock Production

Like crop production, central to low production in the livestock sub sector is limited funding, climate change, poor farming practices and disease outbreak. In dealing with these binding constraints, the following measures are suggested:

- There is a need to train farmers with a view of building their capacity to run cattle and animal rearing as a business. In addition, there is need to create strong value chain linkages between farmers, the Cold Storage Company, meat processors and abattoirs.
- Given that livestock producing districts are in semi-arid conditions, key informants noted that the government should incorporate drought

mitigation measures in the Command Livestock programme for example through setting up community livestock centres with access to supplementary feeding.

- The livestock centres which can be operated by the private sector or farmer groups will be designed to provide attendant services to small scale farmers such as cattle buying points, livestock input selling points and farmer training points. Furthermore, the community livestock centres can also be used as artificial insemination and bulling points in a bid to improve rural livestock genetics and quality of beef herds.
- There is a need for the Department of Veterinary Services to put in place measures that completely eradicate the continuous outbreak of diseases such as FMD and Avian Influenza Virus. Furthermore, enforcement and review of statutes on animal health ought to be timeously carried out to avoid unnecessary disease outbreaks. Effective management of the FMD problem can be achieved by moving towards a more decentralised marketing and slaughter system. This development would require the construction of abattoirs in strategic locations with a complementary marketing system that minimises transportation of live animals from high risk areas to low risk areas.
- Stakeholders advocated for the implementation of a value chain focused livestock policy whose traits are; enhancement of efficiencies along the livestock value chains, security of livestock resources against natural and man-made disasters, equitable development of livestock value chain stakeholders and protecting consumers against risks arising from livestock development.

### (c) Improving Access to Finance in the Agricultural Sector

Although the commodity exchange was operationalised, there was a need to include crops like maize, wheat and soybeans which were omitted. This will help in unlocking funding into these commodities which the commodity exchange comes with instruments such as warehouse receipts and derivatives which were noted to be effective in funding the agricultural sector.

In addition, fiscal incentives aimed at supporting companies who are funding the agricultural sector under contract farming should be considered with a view of encouraging the practice.

### (d) Attending to Dilapidated Infrastructures

Regarding dip tanks, if the country is to effectively control ticks and tick-borne diseases, such infrastructure requires urgent attention. There is a need to urgently rehabilitate the dip-tank infrastructure and follow up with provision of dipping chemicals and implementation of mandatory policies to ensure adherence to cattle dipping routines as outlined in the regulations.

In the same vein, there is a need to undertake massive de-siltation across the country with a view to build the capacity of dams to irrigate the potential two million hectares. In addition, there is a need for massive rehabilitation of GMB silos and constructions of new silos across the country with a view of bringing convenience to farmers.

### (h) Ease of Doing Business in Agriculture

To raise the competitiveness of the agricultural sector, the government must consider a two-pronged approach, that is, macroeconomic and microeconomic.

From a macroeconomic perspective, since the agricultural sector is not insulated from the vagaries of economic swings and volatilities in the domestic economy, there is a need for the government to rein in economic instability. This is key since economic instability is being witnessed through exchange rate spikes and inflation with a net effect of shrinking the capital of farmers and key players in the farming value chains with a combined effect of incapacitating farmers and business.

From a microeconomic perspective, deliberate effort must be taken by both government and business to reduce the cost of inputs, high compliance cost, high labour cost, high transport cost, high electricity cost and taxes.

## SECTION ONE: INTRODUCTION TO PROBLEM SETTING

### 1.1 Introduction

The agriculture sector has traditionally and continues to be a very important sector for the Zimbabwean economy. Agriculture constitutes the most significant part of the Zimbabwean economy. In addition, agriculture plays an important role in rural development, employment and in the development and maintenance of external trade links. Agriculture is regarded as the use of land for production of food, fodder, fibre, energy, medicine, etc and for rearing of animals (Helcom, 2001). The sector has undergone rapid transformation in the past two decades due to change in policies, global trends and global warming. This has opened up new ways of doing business in the sector.

Due to the rapid transformations and importance of the sector, African Economic Development Strategies (AEDS) were tasked by the Zimbabwe Agricultural Society (ZAS), The Financial Gazette and Commercial Bank of Zimbabwe to conduct a survey on the state of the agriculture sector in Zimbabwe.

This report contains a description of the background, objectives, review of literature, research methodology, presentation of findings and recommendations for possible implementation and improvements. Understanding the status quo is key in designing appropriate governance and policy interventions in the agricultural sector that optimise benefits in backward and forward linkages within the sector's diversified value chains.

### 1.2 Background on Research Problem

The agriculture sector provides livelihoods to approximately 70% of the population, contributes 15% -20% of GDP and 40% of exports and supplies 63% of agro-industrial raw materials (Ministry of Agriculture, 2020). Women contribute about 70% of the agricultural labour and the bulk of them are subsistence farmers. There are more than 65 crops that the country can benefit from. Therefore, the sector is important in employment generation, economic growth, reduction of poverty as well as food and nutrition security.

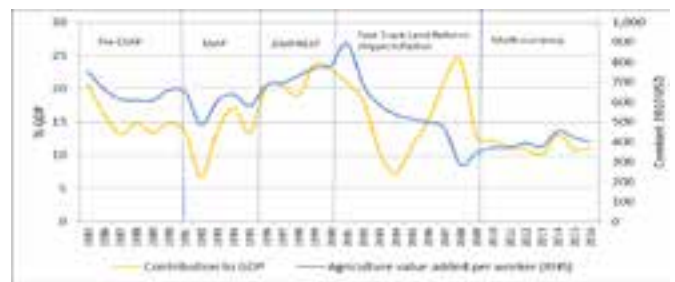
The agro-processing manufacturing sector derives inputs from the sector and in turn provides services and inputs to the sector through backward and forward linkages. The sector produces various commodities which contribute to agricultural GDP as follows: maize 14%, tobacco 25%, cotton 12,5%, sugar and horticulture 7%, beef and fish 10%; at least 24% is devoted to the rest of livestock (cattle, sheep, goats, pigs, poultry and ostrich etc.), 0,5% is accounted by subsistence crops (Ministry of Agriculture, 2019). Of these commodities, tobacco, cotton, sugar, horticulture crops, tea, and bananas account for exports.

Despite emerging postulations that mining is overtaking agriculture as the mainstay of the economy Zimbabwe is predominantly an agro-based economy with the mining sector depending on the agriculture sector for food supply. The agriculture sector is a source of food, income and livelihoods to over 70% of the country's population and creates jobs to nearly 30% of the formally employed workforce (Ministry of Agriculture, 2018).

#### 1.2.1 Contribution of Agricultural Sector to GDP and Value Addition

During the pre-ESAP phase, the agriculture sector's contribution to total GDP declined from 20,7% in 1985 to 6,8% in 1991. The contribution recovered during the ESAP and ZIMPREST period peaking at 23,7% in 1999, before declining in 2000 to 7,2% in 2004, following the FTLR program. Another decline in the contribution was registered from 2001 till 2003 when a low of 7% was recorded. The central bank responded by giving financial support to the agricultural sector through the Productive Sector Facility (PSF 2004) and Agriculture Sector Productivity Enhancement Facility (ASPEF 2005), the contribution of agriculture to GDP recovered again and registered a peak of 24,2% in 2008, before declining again between 2009 and 2013 with a marginal increase of 1,1% in 2016. The contribution to GDP oscillated between 10% and 15% during the multi-currency period between 2009 and 2016.

Figure 1.1.1: Agriculture Sector Contribution to GDP and Value Added per Worker



Source: Zimbabwe Agriculture National Policy Framework

The country's agriculture sector is diversified with various types of food and cash crops grown and a livestock sector comprising beef, small stock (goats, sheep and pigs), dairy and poultry among others. According to the Ministry of Agriculture (2018), tobacco, cotton, sugar, beef, horticultural produce, coffee and tea are the key agricultural exports from Zimbabwe. There is also a wide range of 'minor' crops such as sweet potatoes, round/bambara nuts, cowpeas among others that are grown and livestock species such as rabbits and donkeys that are reared in Zimbabwe.

#### 1.2.2 Contribution to Employment

The agricultural sector employs 66% of the country's total labour force (FAO 2016). Most of the employed in the agriculture sector are women, youth and elderly males. They are predominantly employed in small farms and engage in auxiliary non-agricultural activities seeking to ensure some additional source of income. The overall skill level in the sector is comparatively low, farmers are hardly encouraged to develop professionally, the employee training possibilities offered are very limited.

#### 1.2.3 Zimbabwe Agrarian Reforms

Since the attainment of independence in 1980, Zimbabwe has implemented a series of land and agrarian reforms to address the imbalance in land ownership that was skewed in favour of the white minority. The country's agricultural sector has therefore evolved under a series of economic phases and agrarian reforms. These reforms have had wider redistributive outcomes, including alteration of the agrarian structure and consequences on the backward and forward linkages of value chains of various crops and livestock.

According to Murisa and Mujeyi (2015), Zimbabwe has undergone three distinct phases of agrarian reforms since independence, particularly with reference to the reform of the agricultural policy. The first phase, which was characterised by widespread state involvement, entailed the promotion of a bimodal structure of agriculture and the revitalisation of the smallholder sector between 1980 and 1990. The heightened state support to the smallholder sector culminated in the green revolution of the 1980s (Rukuni *et al.*, 2006).

The second phase of agrarian reforms witnessed the withdrawal of state support from agriculture resulting in liberalisation and deregulation of the economy during the economic structural adjustment programme (ESAP) from 1991 up to 2000. By the year 2000, following the redistribution of about 3.5 million ha since 1980, Zimbabwe's agriculture was characterised by a dualistic structure – a low-input-low-output smallholder sector comprising mainly black indigenous farmers and high-input-high-output, large scale commercial farmers (LSCF) sector comprising mainly white farmers.

The third phase, which is dubbed the Fast Track Land Reform Programme (FTLRP), characterised by the abandonment of market-based approaches to land reform in favour of revolutionary approaches and fast tracking of land distribution, witnessed the reinstatement of state controls and pronounced involvement of the central government in agriculture. During the FTLRP, over 10 million hectares of land were acquired and redistributed to a broad range of beneficiaries including landless peasants, war veterans, middle-class urbanites and farm workers.

Table 1.1.1: Zimbabwe's Land Distribution following the FTLRP

Farm class	Farm category	Farm Household		Area		
		Numbers	% of total	Hectors (Million)	% Total	Farm size
Smallholder/ Peasantry	Communal	1,100,000	81.2	16.400	49.9	15
	Old resettlements	75,000	5.5	3.667	11.2	49
	A1	145,800	10.8	5.759	17.5	40
	Sub-total	1,321,800	97.5	25.286	78.6	
Medium scale Commercial	Old SSCF	8,500	0.6	1.400	4.3	165
	Small A2	22,700	1.7	3.000	9.1	133.9
	Sub-total	31,200	2.3	4.400	13.4	
Large scale Commercial	Medium- largeA2	217	0.03	0.509	1.6	2,345
	Black LSCF	956	0.07	0.531	1.6	555
	White LSCF	198	0.01	0.117	0.4	593
	Sub-total	1,371	0.11	1.157	3.6	
Agro-Estates	Corporates	20	0.001	0.806	2.5	40,320
	Conservancies	8	0.001	0.247	0.8	30,875
	Parastatals	106	0.01	0.296	0.9	2,788
	Institutions	113	0.01	0.146	0.4	1,289
	Sub-total	247	0.022	1.495	4.6	
<b>Total</b>		<b>1,354,00</b>	<b>100</b>	<b>23.878</b>	<b>100.0</b>	

Source: Moyo (2013)

Of the three main phases of agrarian reforms in Zimbabwe the FTLRP is the most prominent one as it had wide and varied consequences on the performance of the agriculture production and the whole spectrum of value chains. The FTLRP entailed the redistribution of land from the minority white large scale farmers to mostly small and medium scale farms and also the introduction of new state based tenure regimes. Thus, the FTLRP has led to a significant reconfiguration of the agrarian landscape as shown in Table 1.1. Prior to the FTLRP, the large - scale commercial farming sector comprised about 4,500 farm owners and around 6,000 farms but these had been decimated to around 300 by 2010 (Moyo, 2013). The area covered by white-owned large -scale commercial farms has decreased drastically from over 15 million ha in 1980 to just around 3.4 million ha in 2010 following the FTLRP (Moyo, 2011).

The FTLRP introduced two new land settlement/ownership categories/models; the A1 and the A2 resettlement schemes with average farm sizes of 37ha and 318 ha, respectively (Scoones, *et al.*, 2010). The A1 resettlement model is largely an expansion of old communal areas which has witnessed the area under smallholder farming increase by about 16%. The new agrarian structure emerging from the FTLRP has 73% of the total agricultural land now falling under smallholder production while approximately 8% is now under small to medium scale commercial farming in which the majority of the A2 farms fall under. The balance of 19% comprises of remaining LSCFs, large A2 farms, state farms and large corporate estates. In place of the approximately 6,000 farms, the FTLRP has created close to 180,000 (over 160,000 A1 and about 20,000 A2) farms in the country (Moyo, 2011b; Scoones *et al.*, 2010; Moyo, 2013). It is important to note that there are no studies that show that there are further changes to the land ownership structure in Zimbabwe after the publication done by Moyo (2013).

The emerging agrarian structure has wider implications for trends in the agriculture sector, state of agricultural infrastructure, agriculture market linkages, the link between finance and agriculture production. Given that the country's agricultural sector is predominantly smallholder-led with over a million communal farmers relying on rain-fed agriculture, and close to 70% of them making a livelihood on less than 2 hectares. The debate, however, should not be on whether to promote smallholder farmers or turn the focus on to the new medium/large-scale, but to find policy options that are suited to different farm categories. A 'one size fits all' strategy will likely leave many trapped in poverty due to stubbornly low productivity and resource constraints facing the different farmers.

Figure 1.1.2: Agro-Ecological Regions in Zimbabwe



Source: Ministry of Agriculture (2018)

Zimbabwe is divided into five natural farming regions based on agro-ecological factors that include rainfall regime, temperature, the quantity and variability of average rainfall, as well as soil quality and vegetation. The characteristics and major activities of each region are as follows:

- Region I is characterised by over 1,000 mm annual rainfall and relatively low temperatures. Agricultural activities suitable for the area are dairy farming, forestry, tea, coffee, fruit, beef and maize production. Region I is found in the eastern border of the country in Mutare, Manicaland Province.
- Region II receives rainfall that is between 700 – 1,050 mm and is suitable for intensive farming of maize, tobacco, cotton and livestock production.
- Region III receives 500 – 800 mm of rainfall and experiences relatively high temperatures and is subject to seasonal droughts. The region is suitable for production of fodder crops and cash crops under good farm management.
- Region IV receives between 460 – 650 mm of rainfall and is subject to droughts. Region IV is suitable for farm systems based on resistant fodder crops, forestry and wildlife/tourism.
- Region V receives less than 450 mm of rainfall and is suitable for extensive cattle ranching, forestry and wildlife/tourism.

#### 1.2.4 Agriculture Sector Rebound

Notwithstanding the importance of the agricultural sector to economic development, Zimbabwe witnessed massive decline in agricultural

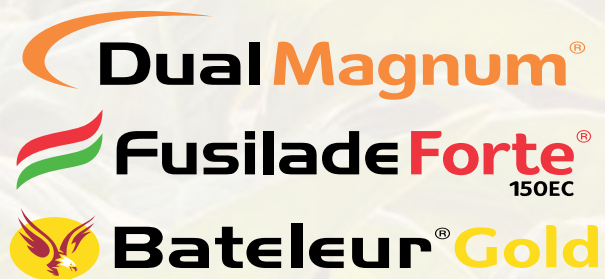
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production since the turn of the new millennium. Zimbabwe, which used to be the bread basket of Southern Africa became a net importer of various agricultural produce which *inter alia* include wheat, maize, soya bean, fruits, vegetables, meats and eggs among others.

Contrary to poor production output witnessed in previous years, the 2020/2021 season registered more than 100% increase in output of major crops such as maize, traditional grains and soybeans. This has been powered by good rain season and additional financial support from the government of Zimbabwe which came in the form of Pfumvudza programme. However, production output in soybeans, sunflower and milk is still below the national requirement.

**Because of low production in the agricultural sector, Zimbabwe imports around US\$1 billion worth of farm produce which *inter alia* include cereals (+US\$500 million), soybeans (US\$250 million), fruits and vegetables (US\$200 million) and other commodities such as fertile eggs, meat and milk. Imports of the commodities, which can be produced locally, coupled with the fact that 70% of raw materials used in industry comes from the agricultural sector, weighs down the country's ability to stimulate economic growth as well as stabilising the national currency.**

It is against this background that Zimbabwe Agricultural Society, The Financial Gazette and Commercial Bank of Zimbabwe commissioned African Economic Development Strategies (AEDS) to carry out this survey whose thrust is to unpack the state of agriculture sector in Zimbabwe.

### 1.3 Objectives of the Study

The overall goal of the survey is to unpack the state of Zimbabwe's agricultural sector. The specific objectives of the assignment are to:

- Establish production trends of various crops and livestock;
- Establish the state of agricultural infrastructure (irrigation, grain storage, etc);
- Establish the role of agriculture sector produce markets in Zimbabwe;
- Establish the link between finance and agriculture production;
- Establish the impact on ease of doing business on agriculture in Zimbabwe;
- Establish the impact of climate change on agriculture productivity;
- Establish economic opportunities which the Zimbabwe agricultural sector presents;
- Estimate agricultural production index; and
- Develop clear, practical responses and proposals (solutions) to problems identified that affect Zimbabwe's agricultural sector in the following way:
  - (a) Specific recommendations targeting government of Zimbabwe and its agencies; and
  - (b) Specific recommendations to the stakeholders in the agricultural sector on how they can sustainably support agricultural development.

### 1.4 Terms of Reference

AEDS as the consultants to this survey were tasked to provide leadership and technical support to facilitate the development process for the survey to the state of the agricultural sector report. The consultants' responsibilities included taking overall responsibility for drafting the final report. The Terms of References for undertaking the work at hand were as follows:

- Conducting literature review on the country's agriculture sector performance and identify critical factors impacting on production and marketing in agriculture

- Carry out Key Informant Interviews (KIIs) with key stakeholders in the public and private sectors;
- Prepare a synthesized paper or executive summary (max of two pages) focusing on key observations/findings;
- Prepare and present the draft to Zimbabwe Agriculture Society (ZAS), Financial Gazette (FINGAZ) and Commercial Bank of Zimbabwe (CBZ);
- Submit the final report; and
- Develop policy briefs focusing on each thematic area.

### 1.5 Scope of Study

This agriculture sector study covered all eight agriculture/rural provinces namely, Mashonaland Central, Mashonaland West, Mashonaland East, Masvingo, Manicaland, Midlands, Matabeleland North and Matabeleland South. Data was gathered from provinces and districts throughout the country.

### 1.6 Justification of the Study

This study was carried out to produce findings that will serve as a mechanism to identify, prioritise agriculture improvement areas and provide a benchmark upon which future improvements in the sector will be measured. In addition, the study was undertaken with a view of identifying opportunities for further investment in the agricultural sector. It is also aimed at informing policy makers in terms of decision making.

### 1.7 Methodology

The study on the state of agriculture sector in Zimbabwe was developed through extensive document reviews of previous case studies and international experiences on agriculture. In addition, an integrated triangulation approach that allows for the collection and analysis of both qualitative and quantitative data was also used. Approaches that were used are primary data collection through interviews using interview guides and questionnaires; and secondary data sources, through desk review of previous studies on agriculture sectors from other developing countries, relevant national policies such as Zimbabwe Agriculture Investment Policy, Zimbabwe National Agricultural Policy Framework, Comprehensive Africa Agricultural Development Policy and National Budget Statements. Key informant interviews, case studies and focus group discussions were employed to collect data. The key informant interviews to gather primary data were held as follows; parastatals (10), agricultural extension officers and veterinary officers (110), business membership organisations (8), industry (25), development partners (3), and banks (10). In addition to key informant interviews, 150 farmers and 4 focus group discussions were held.

Survey questionnaires were used to complement key informant interviews and focus group discussions. The interview guides and questionnaires sought to collect data on production trends of various crops and livestock, agricultural infrastructure and its effect on agricultural production, the role of agriculture sector produce markets, the role between finance and agriculture production and the effect of climate change on agriculture productivity. Raw gathered by the survey cleaned by checking and eliminating data entry and other errors. Survey data was analysed with SPSS general version IBM 22 in respect to descriptive and inferential statistics.

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## SECTION 2: REVIEW OF RELATED LITERATURE ON AGRICULTURE

### 2.1 Introduction

This section presents the theoretical underpinning of the agricultural sector, global trends on agricultural production and challenges faced by farmers. This review is undertaken with a view of building a solid theoretical underpinning for the research as this will be tied to the research objectives.

### 2.2 Profile of the agricultural sector

Agriculture is defined as the use of land for production of food, fodder, fibre, energy, medicine, etc and for grazing (landscape preservation) (Helcom, 2001). Of the four sub sectors of agriculture (growing of crops, farming of animals, mixed farming, agricultural service activities), the first three sub sectors share many characteristics, including in the structure of, and trends in, employment, and face similar opportunities and threats. The fourth sub sector is primarily involved in service activities that are dependent on agriculture with landscape gardening involving direct links with the final customer. However, globally, this sub sector is relatively small accounting for less than 10% of sectoral employment. In the same vein, market gardening activity is also relatively small accounting for less than 5% of activity. These two activities, market gardening and landscaping gardening represent niche opportunities for a small number of entrepreneurs but their impact is very small relative to the developments that are occurring in mainstream agricultural activities. Given the dependence of market gardening on agriculture and other external factors, trends in the sub sector are similar to the other three sectors.

In Zimbabwe, agriculture occupies a central place in the Zimbabwean economy for employment, incomes and poverty reduction. It contributes 15-18% of Gross Domestic Product (GDP), 23% to the total formal employment, and provides livelihoods to approximately 70% of the rural population (54% of which are women). It also supplies about 63% of industrial raw materials with the share of agriculture in manufacturing value added at 60%, and the share in export earnings at 30%. The Ministry of Agriculture (2018) noted that 15 out of the 31 industry clusters in Zimbabwe depend on agriculture for feedstock. Agriculture-related employment supports a third of the formal labour force.

Maize, tobacco and cotton account for more than 50% of the agricultural GDP, with tobacco leading the pack with 25%, followed by maize at 14%, and cotton at 25%. Ten% is accounted for by the beef and fisheries sectors, whilst about 24% is devoted to the rest of the livestock like sheep, goats, pigs, poultry and ostrich. Within the milieu of commodities; tobacco, cotton, sugar, horticulture, tea, and bananas collectively account for about 40% by value of national exports. The performance of the agricultural sector therefore has a direct bearing on overall national economic performance, and on human development especially with regard to national and household food and nutrition security.

Ironically, the contribution of the agricultural sector to national GDP has been falling in recent years. For example, the contribution of the agricultural sector fell from the peak of 12.5% in 2015 to 9.4% in 2018 (see table 2.1).

**Table 2.1: Contribution of Various Agro Sub-Sectors to GDP**

Crop	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Tobacco	3.2	4.9	4.3	4.3	4.8	4.8	3.2	2.6	3.6	3.2
Maize	1.8	1.4	1.2	0.8	0.6	0.9	1.8	1.4	1.2	0.8
Beef	1.3	0.9	0.8	0.7	0.7	0.7	1.3	1.1	0.9	1.0
Cotton	1.6	1.5	1.1	1.4	0.6	0.5	1.6	1.3	1.1	0.9
Sugar	0.9	0.7	0.7	0.7	0.6	0.7	0.9	0.7	0.6	0.8
Horticulture	0.8	0.7	0.6	0.7	0.7	0.7	0.8	0.7	0.6	0.9
Poultry	0.6	0.5	0.6	0.7	0.8	0.8	0.6	0.5	0.3	0.5
Groundnuts	0.4	0.3	0.3	0.1	0.1	0.1	0.4	0.3	0.2	0.1
Wheat	0.5	0.3	0.3	0.2	0.1	0.1	0.5	0.4	0.2	0.1
Dairy	0.4	0.3	0.2	0.2	0.2	0.3	0.4	0.3	0.3	0.2
Coffee	0.3	0.2	0.2	0.1	0.1	0.1	0.3	0.2	0.1	0.2
Soybeans	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.2
Tea	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Paprika	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Pork	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.1	0.2	0.1
Wildlife	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0
Sorghum	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.1
Barley	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0
Sheep & goats	0.0	0.0	0.2	0.3	0.3	0.3	0.0	0.0	0.0	0.0
Sunflower seeds	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ostriches	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Total Agric Contribution to GDP</b>	<b>12.7</b>	<b>12.3</b>	<b>11.1</b>	<b>10.8</b>	<b>10.2</b>	<b>10.7</b>	<b>12.5</b>	<b>10.35</b>	<b>8.52</b>	<b>9.4</b>

Source: Ministry of Lands, Agriculture, Fisheries, Water and Rural Resettlement (2020)



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for easier access to loads. The chassis and powertrain have been adapted for better towing performance, with trailer sway control added as a standard feature to improve stability. This feature detects self-oscillation and applies to the brake to control the trailer.

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### 2.3 Global Trends in Investments into Agriculture

Overall, agriculture remains much less capital intensive in low- and middle-income countries (FAO, 2017). FAO (2017) noted that to date low- and middle-income countries invest in agriculture almost as much, in absolute terms, as high-income countries, that is, around US\$190 billion in both country groups. In the period 1991–2014, agricultural investment levels increased in all country groupings, although at different rates. In high-income countries, investment increased from around US\$120 billion to US\$190 billion, an annual average growth rate of around 2%. In China, investments into agriculture grew from less than US\$10 billion to US\$75 billion, a growth rate of around 9%, while investment in agriculture in the remaining low- and middle-income countries grew from US\$45 billion to US\$115 billion, a growth rate of around 4%.

The preponderance of low- and middle-income countries in global investments in agriculture does not imply the sector is seen as more important, relative to its size. A comparison between the shares of agricultural investment in total investment and the shares of agricultural value added in GDP reveals important structural differences across groups of countries, as well as different dynamics.

First, only in high-income countries is the agricultural investment share larger than agricultural value added share. In the last two decades, high-income countries have always devoted a larger share of investment to agriculture than the share of the sector in GDP. This is reflected in the fact that the 'agricultural investment orientation ratio' has remained consistently above 1. In low- and middle-income countries, in contrast, this ratio is much lower, at around 0.4 (FAO, 2017).

Second, diverging patterns across regions have developed in the past two decades. While the investment orientation ratio is increasing in high-income countries, East Asia and the Pacific (including China), South Asia, Europe and Central Asia, it is decreasing in the Middle East, North Africa, sub-Saharan Africa and, to some extent, Latin America and the Caribbean.

Degrees of capital intensity in agriculture sectors also vary. FAO (2017) noted that agriculture in high income countries is significantly more capital-intensive than in low- and middle income countries – it requires 4 units of capital to generate one unit of value added, compared to around 1.5 in low- and middle-income countries. However, in East Asia and the Pacific (including China), South Asia, Europe and Central Asia, the capital-intensity of agricultural production is increasing. While this cannot be univocally interpreted as a signal of convergence towards the type of agriculture found in high-income countries, it may indicate that capital is progressively replacing other inputs and factors, particularly labour.

In fact, the share of labour employed in agriculture in these regions is decreasing. In contrast, in the Middle East and North Africa, sub-Saharan Africa, and Latin America and the Caribbean, capital-intensity has fallen. This study seeks therefore to review the state of play of investments into Zimbabwe's agricultural sector.

### 2.4 Trends in Food Prices

After peaking in 2008 and again in 2011, FAO's real food price index has fallen back to levels reached in the early 1980s, although it remains well above the low levels of the 1990s and early 2000s. The most recent joint report by FAO and the Organisation for Economic Co-operation and Development (OECD) provides a somewhat mixed picture of medium-term developments in real food commodity prices to 2025. FAO and OECD noted that while the prices of meat and cereals, with the exception of coarse grains, are projected to decline in real terms, prices for dairy products will tend to rise over the next 10 years.

FAO and OECD notes that future levels of food prices depend, among other factors, on how production will be able to accommodate tightening resource constraints and climate change. Climate change may jeopardize the possibility of expanding agricultural yields in some regions of the globe, which is required to meet growing demand; the result would be upward pressure on prices (FAO, 2016c). In addition, mitigation policies may require the internalisation of carbon-emission costs. Furthermore, prices in the long run may also rise, as long as there will be a need to reduce emissions of greenhouse gases (GHGs) in order to comply with international agreements on climate change. However, adopting these mitigation measures would impose additional costs (at least in the short run), which would put upward pressure on output prices (Smith et al., 2014).

**Further, as a result of the Covid-19 pandemic, global markets have witnessed massive disruption in global supply chains and production, food prices are anticipated to rise sharply in the very near future.**

This situation is likely to worsen the Zimbabwean balance of payment position considering the fact that Zimbabwe is a food net importer. This calls for the country to institute measures aimed at raising national productivity and overall national output.

### 2.5 The Impact of Climate Change Vulnerability

One of the objectives of this survey is to establish the impact of climate change vulnerability. This section provides theoretical underpinning and grounded theory on the impact of climate change on agricultural production and productivity.

According to the most recent assessment report of the Inter- governmental Panel on Climate Change (IPCC), published in 2014, levels of anthropogenic emissions of GHGs are now at their highest in history (Porter et al., 2014). Agricultural production and its effect on land use are major sources of these emissions. Charting environmentally sustainable pathways for agricultural development has a central role to play, therefore, in mitigating climate change.

The FAO (2017) observed that the impacts of climate change are expected to be most adverse in low- and middle-income countries, where millions of people depend on agriculture and are vulnerable to food insecurity. In 2015, world leaders, at the United Nations Framework Convention on Climate Change (UNFCCC) held in Paris, explicitly acknowledged the need to address this threat. The world leaders negotiated, under the aegis of the UNFCCC, the Paris Agreement on climate change, which recognises 'the fundamental priority of safeguarding food security and ending hunger, and the particular vulnerabilities of food production systems to the adverse effects of climate change' (UNFCCC, 2015).

In its latest assessment, the IPCC has stated with high confidence that in low-latitude countries crop production will be 'consistently and negatively affected by climate change'. In northern latitudes, the impacts on production are more uncertain; there may be positive or negative consequences (Porter et al., 2014). Increasing variability of precipitation and increases in the frequency of droughts and floods are likely to reduce yields in general (FAO, 2016e). Although higher temperatures can improve crop growth, studies have documented that crop yields decline significantly when daytime temperatures exceed a certain crop-specific level (FAO, 2016e).

**From a Zimbabwean perspective, amongst identified climate change vulnerability factors such as variability in precipitation, frequency of droughts, floods and high temperatures, this study seeks to establish the major channels or factors through which climate change affects agricultural production.**

The IPCC assessment report has stated with medium confidence that climate change will increase the inter annual variability of crop yields in many regions. The use of climate models in conjunction with crop models is contributing valuable insights into the possible impacts of climate change on yields. For the main cereals, projected yields, due to climate change under the different representative concentration pathways show significant regional increases and decreases but mostly downward shifts globally (FAO, 2016e).

A meta-analysis of 1090 studies on yields (primarily wheat, maize, rice and soybeans) under different climate change conditions indicates that climate change may significantly reduce yields in the long run. Further analysis by FAO found quite distinct patterns for low- and middle-income countries in tropical areas, and high-income countries in temperate zones. For the former, most estimates for crop yield impacts are negative, with the share of negative estimates increasing the further into the future the study projects. Compared with those outcomes, estimates for high-income countries showed a much larger share of potentially positive changes (FAO, 2016e).

**Higher temperatures and unreliable rainfall patterns are expected to create severe hardships for small-scale farmers, particularly in arid and semi-arid grassland and rangeland ecosystems at low latitudes (Hoffman and Vogel, 2008). In the same vein, heat and water scarcity will have a direct impact on animal health and will also reduce the**

### quality and supply of feed and fodder (FAO, 2009).

There is some evidence that global warming has already affected the distribution of some marine species, with warm-water species shifting towards the poles (FAO, 2013a). One modelling exercise has projected that the catch potential in tropical countries could decline by 40%, while in high-latitude waters the potential could increase by between 30 and 70% (Cheung *et al.*, 2009). Changes in temperature and rainfall will also cause the distribution of inland species to shift.

The IPCC has projected that global warming between 1 and 2°C will have a moderate impact on the planet's biodiversity (Porter *et al.*, 2014). For agricultural ecosystems, there is evidence that some crops species and varieties currently grown in a particular area may not be able to adapt quickly enough to the changes. Because different species will react differently, the complex interactions among species will be disrupted, potentially affecting ecosystem services such as pollination and the control of crop pests by natural predators. Plant and animal pests and diseases may spread into areas where they were unknown before, but important knowledge gaps remain in this area (Porter *et al.*, 2014). For example, in Zimbabwe, the armyworm has been noted as one of the menaces of climate change. FAO (2017) noted that climate change will also contribute to existing long-term environmental problems, such as groundwater depletion and soil degradation, which will affect food and agriculture production systems.

## 2.6 Agricultural Productivity and Innovation

To meet demand in 2050 when world population reaches 9.73 billion, as noted by the United Nations (UN), the world agriculture sector needs to produce almost 50% more food, feed and biofuel than it did in 2012 (FAO, 2017). In sub-Saharan Africa and South Asia, agricultural output would need to more than double by 2050 to meet increased demand, while in the rest of the world the projected increase would be about one-third above current levels (FAO, 2017).

From a global perspective, meeting the increased demand is not expected to be a major challenge, if past achievements are a guide (FAO, 2017). Historically, much bigger increases in agricultural production have been recorded in comparable time frames. For example, between 1961 and 2011, global agricultural output more than tripled (FAO, 2017). In low-income countries, livestock production has been one of the fastest growing agricultural sub sectors. Since the early 1970s, per capita consumption of milk, dairy products and vegetable oils has almost doubled, while meat consumption has almost tripled (Alexandratos and Bruinsma, 2012).

FAO (2017) notes that rapid technological development and innovation offers the prospect of meeting future food needs sustainably. However, this can only be achieved through discerning public policies, increased investments and public-private partnerships, which exploit the opportunities for maintaining current levels of productivity, sustainably raising yields, and reducing poverty and food insecurity.

**The question as to whether Zimbabwe will be able to adopt the same strategies and policy measures with a view of coping with global demands of food will be an empirical one which will be addressed in this survey.**

## 2.7 Trends in Yields and Agricultural Efficiency

One of the objectives of this study is to review the performance of the agricultural sector from productivity perspectives, that is, yields per hectare. In order to build a theoretical underpinning of agricultural productivity, this section reviews global experience on agricultural productivity.

At a global level, since the 1990s, average annual increases in the yields of maize, rice, and wheat at the global level have been slightly more than 1%, much lower than in the 1960s, while those of soybeans and sugarcane have been below 1% (FAO, 2017). Because the substantial additional amounts of food needed in coming decades will be produced mainly through yield increases, rather than major expansion of the cultivated area, cereal yield growth rates below 1% a year would be a worrying signal. There are also very large differences in crop yields between high-income and low-income countries (see table 2.2). Yields of wheat and rice in low-income countries are currently about half those in high-income countries.

**Table 2.2: Annual Average Crop Yields [2001-2012] Tons/Hectare**

Country Group	Wheat	Rice	Maize
Low income	1.82	3.3	1.54
Lower middle income	2.74	3.65	2.74
Upper middle income	2.67	5.28	4.41
High income	3.5	6.64	8.99
World	2.92	4.16	4.87

Source: FAO (2017)

Yields of major crops (cereals, roots and tubers, pulses, sugar crops, oil crops and vegetables) also vary substantially across regions. Estimated yield gaps, expressed as a percentage of potential yields, exceed 50% in most low-income countries. They are largest in sub-Saharan Africa (76%) and lowest in East Asia (11%). The gap between farm yields and potential yields reflects constraints, such as insufficient adoption of more productive technologies, a lack of market integration and gender inequalities in small-scale family farming (FAO, 2011b).

FAO noted that in recent decades increased use of land, irrigation and agro-chemicals played a major role in the growth of agricultural production during the Green Revolution. Sadly, gains in agricultural production were often accompanied by negative effects on agriculture's natural resource base, including land degradation, salinization of irrigated areas, over-extraction of groundwater, the build-up of pest resistance and the erosion of biodiversity. Agriculture has also damaged the wider environment through deforestation, the emission of greenhouse gases and nitrate pollution of water bodies (FAO, 2011a).

**This current study aims to review Zimbabwe's productivity trends. In this way, production trends across all crops and livestock are presented with a view to showcase how Zimbabwe has performed in recent years. In addition, production indices and production efficiency indices are used to assess production efficiency in Zimbabwe.**

## 2.9 Global Trends on Agricultural financing

**One of the objectives of this study is to review the impact of finance on the state of the agricultural sector in Zimbabwe. In providing theoretical underpinnings to this objective, this section reviews global trends on agricultural financing with a view of juxtaposing the observations with Zimbabwean experience.**

Overall, the FAO (2017) noted that the public sector is not a major investor, but its role can be catalytic. Public investments in agriculture, related infrastructure, and research and development only represent a fraction of total investment in the sector in low-income countries. Most investments in agriculture tend to be made by private sector agents, especially by the farmers themselves. This is particularly so because more than 90% of the estimated 570 million farms worldwide are family farms (FAO, 2014).

In low-income countries, the vast majority of these farms are less than 5 hectares in size which is a similar situation to Zimbabwe where the majority are resettled under A1 as well in communal areas. Many smallholders tend to face major barriers accessing the finance needed for investment in improving productivity and adopting sustainable farming practices. FAO (2016) noted that most of the smallholders farmers have limited financial literacy, collateral and credit history, and few other sources of income.

FAO (2017) noted that governments can support and play a catalytic role in stimulating pro-poor investments, by securing producers' property and tenure rights, and developing rural infrastructure and public services. Public investment in public goods and services – such as institution building, agricultural extension, productivity-enhancing research, rural transport, health, education and social protection – will be fundamental to creating an environment favourable to pro-poor investment. A positive recent trend is the emergence of partnerships between the public sector, private sector and communities, which promote agriculture and rural development, poverty reduction, food security and improved nutrition.

Globally, agricultural investments generally are considered high-risk given the susceptibility of production to weather and other climatic hazards. This applies particularly to low-income countries, where infrastructure, processing capacity, and cold storage and transportation may be poorly developed. This limits farmers' options to reduce the impacts of seasonality

and uncertain weather conditions on incomes and local price stability. Improving infrastructure, building resilience, and strengthening risk-coping mechanisms (e.g. through social protection and agricultural insurance) will be essential to help farmers and agricultural investors hedge against the risks inherent in agricultural production (FAO, 2017).

In order to reduce the risk involved in funding agriculture, FAO (2017) noted that provision of incentives to private banking institutions (including cooperatives) aimed at increasing their rural coverage has been effective in promoting access to finance to smallholder farmers. In the same vein, FAO noted that creation of employment opportunities in infrastructure development and the public procurement of agricultural products generated by smallholders can also help to stabilize incomes and provide opportunities for low-income rural people to acquire productive assets and inputs, such as land, equipment, fertilizers and seeds. This has been observed as one way in which the government plays a catalytic role in encouraging funding for the agricultural sector.

However, more in general, private investments in agriculture will be influenced through broader agricultural and food price policies. FAO (2017) noted that governments around the world provide incentives to farmers and agribusinesses in order to increase agricultural production, influence input costs, supplement farm incomes and achieve other social, economic and environmental objectives, such as landscape preservation, water conservation, poverty reduction, and climate change mitigation and adaptation. Much of the existing production support, worldwide, involves subsidies on inputs, such as fertilizer and energy, particularly fossil fuels, or direct payments to farmers. The OECD countries spent US\$211 billion in

agricultural production support in 2015, while in the non-OECD countries for which data are available, this support reached US\$352 billion in the same year (OECD, IEA, NEA and ITF, 2015).

From the perspective of sustainable development, such support measures may have unintended impacts on the environment. For example, input subsidies may induce inefficient use of synthetic fertilizers and pesticides and increase the emission intensity of production. Almost half of all agricultural subsidies provided by governments of OECD countries in 2010-2012 were classed as 'potentially most harmful to the environment' because they induced greater demand for chemical fertilizers and fossil fuels, which lead to more GHG emissions (OECD, IEA, NEA and ITF, 2015). Such policies influence the magnitude and the nature of investments in agricultural sectors and food systems. Making support conditional upon the adoption of practices that lower emissions and conserve natural resources would be one way of aligning agricultural development and climate goals. Policies in areas such as nutrition, food consumption, food price support, natural resources management, infrastructure development and energy, may similarly need to be reset (FAO, 2016).

**This study seeks to evaluate the role of finance in Zimbabwe's agricultural sector as well as reviewing impediments faced by both the financiers and farmers with a view of coming up with policy measures.**

Subsequent chapters present findings of the study based on the objectives of the study.

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## SECTION 3: PRODUCTION TRENDS IN CROPS

## 3.1 Introduction

This section provides production trends in crops focusing on area cultivated, annual production and productivity levels. The study established trends for cereals which form the staple food for the country, cash crops, oil seeds, pulses, plantation crops and horticultural crops. The study provides a comparative analysis of production and yields by province and district highlighting the main producing province and district in order to guide policy interventions. The contributions to national production and productivity levels by land ownership structure was also analysed for major crops that are meant to advise the government on food security issues in the country.

## 3.2 Trends in Cereals

In order to unpack the state of affairs in the production of cereals, this section discusses production trends of maize, sorghum, millet and wheat.

## (a) Production Trends in Maize

Maize is Zimbabwe's main staple crop grown in all areas of the country at both small scale and large scale. The crop is so central to people's lives and as such because of competitiveness challenges, the government provides various support schemes to farmers which ranges from National Enhanced Agriculture Productivity Scheme (NEAPS) (formerly command agriculture) and pfumvudza programme – a climate smart conversation agriculture. Table 3.1(a) shows maize production by province between the 2019/2020 and 2020/2021 seasons.

Table 3.1 (a): Maize Production Trends

PROVINCE	2020/2021				2019/2020		
	Area	Yield	Production	Share (%)	Area	Yield	Production
Mashonaland West	356 356	2.34	833 566	30.7	302 611	1.02	309 984
Mashonaland Central	231 665	2.35	544 786	20.0	202 361	0.90	182 938
Mashonaland East	219 610	1.86	408 880	15.0	193 053	0.67	129 385
Manicaland	265 759	1.12	297 059	10.9	229 996	0.29	65 867
Midlands	360 336	0.83	300 845	11.1	302 653	0.41	123 162
Masvingo	242 908	0.54	131 872	4.9	178 403	0.28	50 458
Matabeleland North	149 584	0.77	115 240	4.2	90 321	0.22	20 002
Matabeleland South	125 632	0.68	84 923	3.2	83 368	0.31	25 833
<b>Total</b>	<b>1 951 848</b>	<b>1.39</b>	<b>2 717 171</b>	<b>100</b>	<b>1 582 766</b>	<b>0.57</b>	<b>907 628</b>

Source: Ministry of Lands, Agriculture, Fisheries, Water and Rural Resettlement (2021)

In the 2020/2021 agricultural season, the country recorded a staggering 199% increase in maize production from the 2019/2020 season. As shown in table 3.1 (a) the estimated maize production stands at 2 717 171MT in the 2020/2021 season while maize output in 2019/2020 was 907 628MT.

Stakeholders interviewed argued that this surge in output is attributed to an increase in the amount of rainfall received, which was well distributed throughout the season and increase in the area under climate proofed technologies and initiatives i.e. Pfumvudza/Intwasa.

On a provincial comparison, Mashonaland West and Mashonaland Central, combined, contributed to 50,7% of total maize output produced in 2020/2021. Likewise, the same provinces had the highest yield per hectare which averaged at 2,35MT per hectare. The contribution of other provinces to national maize output are Mashonaland East (15%), Midlands (11,1%), Manicaland (10,9%), Masvingo (4,9%), Matabeleland North (4,2%) and Matabeleland South (3,2%) (see table 3.1(a)).

Of interest to note is that yield per hectare, at 0,54MT in Masvingo was the lowest yield in the whole country yet the same province had 12% of the land under maize production (see table 3.1 (a)).

**It can be therefore concluded that from a policy perspective, placing more emphasis on maize production in Masvingo is a policy misstep. Rather, in view of the harsh climatic conditions prevalent in this province, more emphasis must be placed on traditional/small grains.**

On a sectoral level, the distribution of maize production in the 2020/2021 season is shown in table 3.1 (b).

Table 3.1 (b): Sectoral Distribution of Maize Production for the 2020/2021 Season

Sector	Area (Ha)	Yield (T/Ha)	Production (MT)
CA	1 133 402	0.87	988 782
OR	173 176	1.35	232 995
SSCA	65 851	1.56	102 710
A1	390 127	1.81	706 372
A2	182 109	3.68	670 785
Peri-urban	7 183	2.16	15 526
<b>Total</b>	<b>1 951 848</b>	<b>1.39</b>	<b>2 717 171</b>

Source: Ministry of Lands, Agriculture, Fisheries, Water and Rural Resettlement (2021)

The communal sector's contribution to national maize production stands at 36% albeit the fact that yield levels are however low compared to other sectors (see table 3.1 (b)).

The research showed that smallholder farmers, both resettled and communal, did not invest much in crop production and their yields are low compared to commercial farmers. The respondents interviewed showed that some of the smallholder farmers in natural regions IV and V have a perception that fertiliser causes crop wilting in light of lower rains and others have the perceptions that it destroys soil fertility. As a result, this has reduced the country's maize average maize yield which averaged 1,39 tons per hectare. This is below average comparator countries such as South Africa which has an average yield of 5 tons per hectare.

From a policy perspective, by virtue of the fact that traditionally the communal area under maize production, that is, 58% and always contributes significantly to maize output notwithstanding low yields, there is a need for the government to raise productivity in the communal sector so as to guarantee food security. Such schemes of support inter alia include provision of sufficient inputs on time and promotion of climate proof programmes such as pfumvudza (see table 3.1 (c)).

Table 3.1 (c): Sectorial Yields for Pfumvudza (Smallholder Farmers) Compared to Smallholder National Maize Production

SECTOR	YIELD (T/HA)	
	NATIONAL	PFUMVUDZA
CA	0.87	5.02
OR	1.35	6.46
SSCA	1.56	6.2
A1	1.81	6.55
PERI-URBAN	2.16	6.36
<b>AVERAGE</b>	<b>1.16</b>	<b>5.28</b>

Source: Ministry of Lands, Agriculture, Fisheries, Water and Rural Resettlement (2021)

The Pfumvudza programme is a game changer in as far as raising agricultural productivity and fostering food security is concerned. Interviewed stakeholders argued that the impact of the Pfumvudza programme on maize yield was caused by two critical factors, that is, (i) the timely provision of right inputs; and (ii) mainstreaming of climate proof practices.

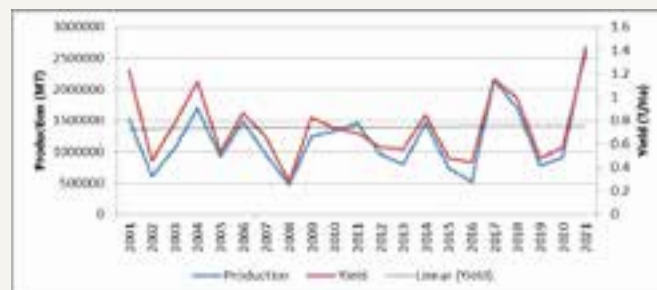
As shown in table 3.1 (c), average yield for the Pfumvudza Programme stands at 5,28MT per hectare while the national yield averaged at 1,16MT per hectare, that is, 5 times less, for the maize produced outside the Pfumvudza Programme.

In view of this observation, there is a strong business case for the government of Zimbabwe to expand the Pfumvudza programme to include more farmers, especially in provinces such as Masvingo,

Matabeleland North, Matabeleland South and parts of Manicaland and Midlands which are drought prone.

Although there are still a number of areas of improvements required to be attended to with a view to ramp up national production, it is important to note that the 2020/2021 farming season was the best in terms of maize production (see figure 3.1).

Figure 3.1: Average Maize Yield Trends from 2000/01 – 2020/2021 Season



Source: Ministry of Lands, Agriculture, Fisheries, Water and Rural Resettlement (2021)

Figure 3.1 shows that the maize yield for the 2020/2021 season is the highest since the 200/2001 season. Stakeholders interviewed argued that there was marked improvement in maize yield across the country as a result of increased rainfall and good distribution from the onset of the season in November 2020 to the end of February 2021. In addition to the good rainfall season in the 2020/2021 season, stakeholders noted that the practice of climate proofed technologies (Pfumvudza/ Intwasa) significantly contributed to the increased yield levels supported by well-coordinated input programs.

It is important to note that during the months of December and January some areas especially in the southern parts of the country yield levels were suppressed due to leaching caused by wet spells. In direct contrast, a few districts like Mudzi in Mashonaland East and Rushinga in Mashonaland Central experienced dry spells at the beginning of February which led to poor yields and complete crop failure. This, combined, somehow weighed down national maize output. From a policy perspective, it is important that attention is paid towards dealing with both the negative consequences of leaching and dry spells. Again, this is where programmes such as Pfumvudza come in handy.

(b) Production Trends of Sorghum

Table 3.2 illustrates trends in sorghum production. Sorghum is one of the minor staple crops that is also cultivated for beer brewing purposes under contracting farming.

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Table 3.2 (a): Sorghum Production Trends

PROVINCE	2020/2021				2019/2020		
	Area	Yield	Production	Share (%)	Area	Yield	Production
Mashonaland West	18 688	0.90	16 726	6.9	20 389	0.51	10 435
Mashonaland Central	51 360	1.08	55 477	22.7	50 032	0.4	19 920
Mashonaland East	19 459	0.75	14 637	6.0	22 777	0.29	6 579
Manicaland	55 979	0.50	27 825	11.4	41 839	0.25	10 568
Midlands	55 589	0.54	30 210	12.4	69 255	0.41	28 213
Masvingo	85 523	0.67	57 192	23.4	66 592	0.23	15 022
Matabeleland North	37 984	0.59	22 449	9.2	37 982	0.23	8 563
Matabeleland South	40 307	0.48	19 546	8.0	24 490	0.18	4 382
<b>Total</b>	<b>364 889</b>	<b>0.67</b>	<b>244 063</b>	<b>100</b>	<b>333 355</b>	<b>0.31</b>	<b>103 684</b>

Source: Ministry of Lands, Agriculture, Fisheries, Water and Rural Resettlement (2021)

In the 2020/2021 season, sorghum production increased by 135%, that is, the country recorded sorghum output of 244 063MT from 103 684MT in the 2019/2020 season. This increase is attributed to the increased total amount of rainfall received that was well distributed as well as the climate proofed Pfumvudza/ Intwasa technologies employed.

**Masvingo and Mashonaland Central, with a combined share of 46.1% of total output, were the major contributors of sorghum production in 2020/2021(see table 3.2 (a)). This observation, together with the observation made in table 3.1 (a) where Masvingo has an insignificant share of maize output, support our argument for more emphasis to be placed towards small grains.**

In terms of distribution of the sorghum production by sector, the communal area made a significant contribution to sorghum output in the 2020/2021 farming season (see table 3.2).

Table 3.2 (b): Sorghum Production (MT) by Sector

Sector	Area (Ha)	Yield (T/Ha)	Production (MT)
A2	6 064	1.37	8 319
A1	32 914	0.76	24 977
SSCA	4 081	0.53	2 172
OR	17 579	0.74	13 060
CA	304 229	0.64	195 532
PU	22	0.14	3
<b>Total</b>	<b>364 890</b>	<b>0.67</b>	<b>244 063</b>

Source: Ministry of Lands, Agriculture, Fisheries, Water and Rural Resettlement (2021)

The communal sector dominated sorghum production accounting for 80% of total production. However, the average yields are still low compared to the A2, A1 and Old resettlement sectors.

### (c) Trends in Pearl Millet Production

Like maize and sorghum, pearl Millet production increased by 132% in the 2020/2021 season from 39 032MT to 90 683MT. Likewise, yield also increased by 82% from 0.23T/Ha to 0.42T/ha. Stakeholders interviewed underscored that the increase is attributed to the high amount of rains received across the country accompanied by good distribution between November 2020 and end February 2021.

Table 3.3 (a): Pearl Millet Trends

PROVINCE	2020/2021				2019/2020		
	HA	T/HA	MT	SHARE (%)	HA	T/HA	MT
Mashonaland West	503	0.54	273	0.30	413	0.26	108
Mashonaland Central	2 237	0.43	963	0.1	4 191	0.28	1 157
Mashonaland East	2 520	0.44	1 105	1.2	5 396	0.21	1 141
Manicaland	35 641	0.41	14 607	16.1	46 815	0.24	11 415
Midlands	21 222	0.34	7 266	8.0	11 201	0.29	3 198
Masvingo	45 374	0.43	19 347	21.3	30 435	0.22	6 814
Matabeleland North	69 188	0.45	30 957	34.1	45 705	0.25	11 488
Matabeleland South	39 704	0.41	16 165	18.9	24 279	0.15	3 711
<b>Total</b>	<b>216 389</b>	<b>0.42</b>	<b>90 683</b>	<b>100</b>	<b>168 436</b>	<b>0.23</b>	<b>39 032</b>

Source: Ministry of Lands, Agriculture, Fisheries, Water and Rural Resettlement (2021)

A review of the contribution of pearl millet production by area in shows that this is traditionally dominated by was dominated by Matabeleland North, Masvingo, Matabeleland South and Manicaland with 34.1%, 21.3%, 18.9% and 16.1% of share of national output. Farmers interviewed stressed that better rainfall patterns which characterized the 2020/2021 season and increased land under pearl millet production significantly contributed to increase in both yields and output.

The main producing districts in Manicaland are Buhera and Mutare while in Matabeleland North province are Gwanda, Bulilima and Beitbridge. In Masvingo province main pearl millet producing districts are Mwenezi, Gutu and Chiredzi.



The distribution of pearl millet production by sector shows that the Communal sector contributed 34 700MT, which is about 89% of the total production (see table 3.3 (b)).

**Table 3.3 (b): Pearl Millet Production by Sector**

Sector	Area (Ha)	Yield(T/Ha)	Production (T)
CA	190 952	0.41	77 761
OR	4 752	0.41	1 935
SSCA	597	0.42	252
A1	19 853	0.53	10 550
A2	236	0.79	185
<b>Total</b>	<b>216 389</b>	<b>0.42</b>	<b>90 683</b>

Source: Ministry of Lands, Agriculture, Fisheries, Water and Rural Resettlement (2021)

However, yield levels of pearl millet are still relatively low compared to the potential of available commercial varieties.

#### (d) Production Trends in Finger Millet

Finger Millet production increased from 9 799MT in the 2019/2020 season to 13 223MT, in the 2020/2021 season reflecting a 35% increase. Farmers and key informants interviewed underscored that better rainfall patterns which were witnessed in the 2020/2021 season propelled the production of finger millet.

**Table 3.4: Finger Millet Production by Province**

PROVINCE	2020/2021			2019/2020		
	HA	T/HA	MT	HA	T/HA	MT
Mashonaland West	621	0.53	329	751	0.27	205
Mashonaland Central	231	0.54	124	235	0.22	51
Mashonaland East	3 174	0.66	2 109	4 530	0.36	1 612
Manicaland	6 626	0.53	3 504	11 089	0.25	2 790
Midlands	4 141	0.51	2 109	3 160	0.29	920
Masvingo	10 051	0.50	5 019	14 180	0.30	4 211
Matabeleland North	19	0.24	5	12	0.39	5
Matabeleland South	100	0.25	25	125	0.04	5
<b>Total</b>	<b>24 962</b>	<b>0.53</b>	<b>13 223</b>	<b>34 082</b>	<b>0.29</b>	<b>9 799</b>

Source: Ministry of Lands, Agriculture, Fisheries, Water and Rural Resettlement (2021)

Although Masvingo and Manicaland provinces were major contributors, with 5 019MT and 3 504MT of finger millet output in the 2020/2021, respectively, area planted declined by about 40% in some districts of Masvingo province and Manicaland due to incessant rains which affected transplanting of the crop (see table 3.4(b)). Stakeholders interviewed also argued that in Manicaland the cessation of support programs for the crop could have also contributed to the decrease in area planted.

#### (e) Sesame Production

Sesame production is estimated at 11 802MT, which is a 134% increase compared to 5 037MT in the 2019/2020 season. Production was affected by the early cessation of the rains.

**Table 3.5: Sesame Production (MT) by Province**

Province	2020/2021			2019/2020		
	Ha	T/Ha	MT	Ha	T/Ha	MT
Mashonaland West	312	0.35	109	40	0.04	2
Mashonaland Central	6 199	0.38	2 351	11 552	0.23	2 666
Mashonaland East	43	0.20	9	50	0.32	16
Manicaland	10 151	0.55	5 582	3 993	0.51	2 023
Midlands	1 299	1.17	1 517	130	0.13	16
Masvingo	4 720	0.45	2 133	2 063	0.15	304
Matabeleland North	240	0.41	99	27	0.33	9
Matabeleland South	11	0.30	3	6	0.18	1
<b>Total</b>	<b>22 974</b>	<b>0.51</b>	<b>11 802</b>	<b>17 860</b>	<b>0.28</b>	<b>5 037</b>

Source: Ministry of Lands, Agriculture, Fisheries, Water and Rural Resettlement (2021)

The major contributors of sesame production are Manicaland Province (5,582MT), Mashonaland Central (2,351MT), Masvingo Province (2,133MT) and Midlands Province (1,517MT).

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### 3.8 Production Trends in Sweet Potato Production

On the back of good rains which were witnessed in the 2020/2021 season, in comparison with the 2019/2020 season, sweet potato production in the 2020/2021 season increased sharply by 269% (see table 3.6).

**Table 3.6: Sweet Potato Production (MT) by Province**

Province	2020/2021			2019/2020		
	HA	T/HA	MT	HA	T/HA	MT
Mashonaland West	4 518	9.73	43 945	1 251	6	6 949
Mashonaland Central	3 682	8.90	32 767	1 554	13	20 404
Mashonaland East	10 251	9.26	94 935	5 437	4	23 420
Manicaland	7 265	10.84	78 717	3 894	10	37 881
Midlands	5 165	9.24	47 722	1 662	4	5 953
Masvingo	13 319	8.35	111 269	5 392	3	16 572
Matabeleland North	597	8.97	5 356	207	2	414
Matabeleland South	716	11.04	7 903	398	7	2 967
<b>Total</b>	<b>45 513</b>	<b>9.29</b>	<b>422 613</b>	<b>19 795</b>	<b>6</b>	<b>114 558</b>

Source: Ministry of Lands, Agriculture, Fisheries, Water and Rural Resettlement (2021)

The major producers of sweet potatoes in the 2020/2021 season are Masvingo province (111 269MT), Mashonaland East province (94 935MT), Manicaland province (78 717MT), Midlands province (47 722MT) and Mashonaland West province (43 945MT) (see table 3.6).

In provinces such as Matabeleland North, Matabeleland South and some parts of Masvingo, farmers interviewed highlighted that tuber formation and expansion has been affected by an abrupt end of season compromising productivity.

### 3.3 Trends in Cash Crops

This subsection discusses production trends of cotton, tobacco and oil seeds.

#### (a) Cotton Production Trends

Cotton is one of the major cash crops grown by more than 300,000 small scale communal and resettled farmers under contract farming scheme with cotton merchants and The Presidential Input Scheme. The crop has been affected by side marketing of contracted crops, inadequate input support and poor agronomic practices.

**Table 3.7: Cotton Production (MT) by Province**

PROVINCE	2020/2021			2019/2020		
	HA	T/HA	MT	HA	T/HA	MT
Mashonaland West	33 759	0.84	28 469	22 565	0.65	14 650
Mashonaland Central	7 010	0.87	6 067	22 421	0.44	9 954
Mashonaland East	50 329	0.76	38 492	8 165	0.45	3 685
Manicaland	23 969	0.79	18 867	14 803	0.79	11 695
Midlands	80 233	0.84	67 180	79 458	0.63	49 847
Masvingo	34 710	0.85	29 441	24 757	0.40	9 959
Matabeleland North	8 688	0.79	6 832	1 163	0.62	722
Matabeleland South	922	0.70	642	878	0.56	488
<b>Total</b>	<b>239 619</b>	<b>0.81</b>	<b>195 991</b>	<b>174 212</b>	<b>0.58</b>	<b>101 000</b>

Source: Ministry of Lands, Agriculture, Fisheries, Water and Rural Resettlement (2021)

Cotton production is estimated at 195 991MT which is an increase of 94% compared to the 2019/20 season. The increase is attributed to the above normal rainfall received as well as the Presidential input support programme.

Major contributors to the national cotton production have traditionally been Midlands province (67 180MT), Mashonaland East province (38 492MT), Masvingo province (29 441MT) and Mashonaland West province (28 469MT) (see table 3.7).

#### (b) Tobacco Production Trends

Zimbabwe is ranked as the biggest producer of flue-cured tobacco in Africa and the fifth largest in the world after China, Brazil, India and the United States of America (USA). Following the recent shift in the agrarian structure and demographics since early 2000, 62% of tobacco production is by small and medium scale farmers.

Tobacco production is expected to increase by 8% from 184 042MT produced last year to 200 245MT in the 2020/2021 season (see table 3.8). Like other crops, farmers argued that the surge in tobacco was a result of good rains received in the 2020/2021 farming season. Furthermore, the stakeholders interviewed underscored that the success of tobacco is due to the auction marketing system which is considered transparent by farmers. In addition, contracting business to farmers seems to be working as farmers are provided with necessary inputs and agronomy advice from the contractors as they aim to recover their money at all cost from contracted farmers. However, interviewed farmers noted that lower prices from the auction system which they also articulate to government intervention in the marketing of crops, is likely to affect farmers in the future.



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## FREQUENTLY ASKED QUESTIONS

1

**What are the important tobacco calendar dates to remember?**

- Stalk destruction
- ✓ The last date for stalk destruction is 15 May
- Seedbed preparation
- ✓ The earliest date for seedbed preparation is 1 June
- Transplanting
- ✓ The earliest date for transplanting (irrigated crop) is 1 September

2

**Why should I register as a tobacco grower?**

- Registration provides statistical information about the total number of growers and possible crop size. This information is important for planning purposes especially on the number of auction floors, number of buyers, mobilizing financial resources to buy the crop and pricing of the tobacco.

3

**How much does it cost to register?**

- A registration fee of \$10 is payable before the deadline of 31st October.
- Thereafter a penalty is charged depending on how late one chooses to register.

4

**Where do I get tobacco seeds and how do I choose the best variety for my area?**

- Tobacco seed is available from Tobacco Research Board (TRB) and Zimbabwe Tobacco Seed Association (ZTSA).

**TIMB Head Offices: Complex No. 429 Gleneagles Road, Southerton, Harare**

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Table 3.8: Tobacco Production By Province

Province	2020/2021			2019/2020		
	Ha	T/Ha	MT	Ha	T/Ha	MT
Mashonaland West	42 201	1.65	69 632	36 256	1.64	59 569
Mashonaland Central	35 645	1.21	43 130	41 983	1.22	51 135
Mashonaland East	26 759	1.97	52 715	19 692	2.19	43 107
Manicaland	20 360	1.70	34 612	19 375	1.55	29 953
Midlands	186	0.78	145	145	1.31	191
Masvingo	24	0.40	10	70	1.25	88
Matabeleland North	2	0.50	1	1	0.44	0.23
<b>Total</b>	<b>125 176</b>	<b>1.60</b>	<b>200 245</b>	<b>117 976</b>	<b>1.56</b>	<b>184 042</b>

Source: TIMB (2021)

Major contributors to the total tobacco production are Mashonaland West province (69 632MT), Mashonaland East province (52 715MT), Mashonaland Central province (43 130MT) and Manicaland province (34 612MT) (see table 3.8).

### (c) Trends of Oilseeds

#### Groundnuts Production Trends

On the back of good rain season, groundnut production increased by 139% from 87 498MT to 208 864MT. This is a refreshing observation considering the fact that Zimbabwe spends a significant amount of money in importing groundnuts. This surge in production is anticipated to significantly reduce the import bill.

With a combined contribution of 64% to the total national production of groundnuts, Mashonaland Central (24.4%), Mashonaland Central (20.4%) and Midlands (19.2%) were the major producers of groundnuts in the 2020/2021 season (see table 3.5). In terms of productivity, Mashonaland West and Mashonaland Central registered yields of 1.1MT and 1.5MT per hectare while Masvingo and Matabeleland North respectively registered yields of 0.43MT and 0.47MT per hectare (see table 3.9).

Table 3.9: Groundnut Production by Province

Province	2020/2021				2019/2020		
	Ha	T/Ha	MT	Share (%)	Ha	T/Ha	MT
Mashonaland West	19 812	1.10	21 855	10.5	14 158	0.48	6 850
Mashonaland Central	33 892	1.50	50 968	24.4	23 663	0.55	13 074
Mashonaland East	45 828	0.93	42 639	20.4	41 135	0.50	20 378
Manicaland	41 712	0.60	25 206	12.1	41 065	0.36	14 881
Midlands	49 479	0.81	40 078	19.2	38 503	0.45	17 226
Masvingo	40 808	0.43	17 693	8.5	39 195	0.30	11 565
Matabeleland North	7 338	0.47	3 480	1.7	3 559	0.28	982
Matabeleland South	11 220	0.62	6 945	3.2	8 228	0.31	2 524
<b>Total</b>	<b>250 088</b>	<b>0.84</b>	<b>208 864</b>	<b>100</b>	<b>209 507</b>	<b>0.42</b>	<b>87 498</b>

Source: Ministry of Lands, Agriculture, Fisheries, Water and Rural Resettlement (2021)

The report noted that although there was significant increase in production, most farmers on medium to heavy textured soils had difficulty harvesting the crop as the soils were dry and hard due to the abrupt end of the season resulting in losses.

### (ii) Production Trends in Roundnut

Estimated roundnut production increased by 59% from 23 832MT in the 2019/2020 season to 37 156MT in the 2020/2021 season. The increase is attributed to an increased amount of rainfall which was well distributed throughout the greater part of the season.

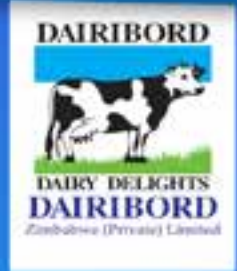
Table 3.10: Round Nut Production (MT) By Province

Province	2020/2021			2019/2020		
	Ha	T/Ha	MT	Ha	T/Ha	MT
Mashonaland West	2 228	0.74	1 655	2 208	0.30	654
Mashonaland Central	632	0.87	547	703	0.35	247
Mashonaland East	6 957	0.61	4 250	8 123	0.36	2 953
Manicaland	17 566	0.40	7 069	26 387	0.28	7 382
Midlands	14 882	0.43	6 327	11 628	0.30	3 481
Masvingo	31 031	0.41	12 670	28 433	0.28	7 979
Matabeleland North	4 427	0.51	2 258	2 237	0.24	546
Matabeleland South	5 618	0.42	2 379	3 949	0.15	588
<b>Total</b>	<b>83 342</b>	<b>0.82</b>	<b>37 156</b>	<b>83 669</b>	<b>0.28</b>	<b>23 832</b>

Source: Ministry of Lands, Agriculture, Fisheries, Water and Rural Resettlement (2021)

Masvingo province, with 12 670MT of the 37 156MT was the major contributor of roundnut production in Zimbabwe. Other significant contributors are Manicaland province (7 069MT), Midlands province (6 327MT) and Mashonaland East Province (4 250MT) (see table 3.10).

Interviewed farmers highlighted that harvesting of the pulse crop has also been made difficult by hard and dry soils as a result of the unexpected termination of the season. Farmers pointed out that they had to dig out the pods using hoes which can be destructive and cause losses of the crop.



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### 3.4 Trends in Pulses

#### (a) Sugar Beans Production Trends

Production increased by 142% from 12 650MT in the 2019/2020 season to 30 613MT in the 2020/2021 season (see table 3.11). Major contributors of sugar beans production are Mashonaland West province (9 709MT), Mashonaland Central province (7 278MT), Mashonaland East province (6 615MT) and Manicaland province (4 329MT). When combined, these four provinces contributed 91.2% of the total sugar beans produced in the 2020/2021 season (see table 3.11). Interviewed farmers underscored that the increase in production and the associated increase in yields per hectare as compared to the 2019/2020 season was as a result of the good rain season.

**Table 3.11: Sugar Beans Production (MT) by Province**

Province	2020/2021			2019/2020		
	Area (HA)	Yield (T/HA)	Prod (MT)	Area (HA)	Yield (T/HA)	Prod(MT )
Mashonaland West	8 378	1.16	9 709	3 145	0.51	1 596
Mashonaland Central	8 377	0.87	7 278	5 775	0.53	3 055
Mashonaland East	6 383	1.04	6 615	8 697	0.46	3 982
Manicaland	6 286	0.69	4 329	5 845	0.49	2 846
Midlands	2 358	0.69	1 632	1 630	0.29	477
Masvingo	2 609	0.23	596	2 214	0.21	459
Matabeleland North	374	0.62	230	528	0.08	44
Matabeleland South	556	0.40	223	783	0.24	191
<b>Total</b>	<b>35 322</b>	<b>0.87</b>	<b>30 613</b>	<b>28 617</b>	<b>0.44</b>	<b>12 650</b>

Source: Ministry of Lands, Agriculture, Fisheries, Water and Rural Resettlement (2021)

However, farmers also highlighted that the crop that was planted later in January and early February is suffering from moisture stress due to an abrupt end of the season with most farmers not having any means of supplementary irrigation. This was a common feature in the Midlands, Masvingo, Matabeleland North and Matabeleland South provinces.

#### (b) Soybeans Production Trends

Soya bean production increased from 47 088MT in the 2019/2020 season to 71 290MT in the 2020/2021 agriculture season. Although this is a notable improvement, the 2020/2021 soya bean output is still far below the national requirement of 240 000MT per year.

**Table 3.12: Soya Bean Production (MT) By Province**

PROVINCE	2020/2021			2019/2020		
	HA	T/HA	MT	HA	T/HA	MT
Mashonaland West	22 586	1.6	35 070	12 848	1.43	8 372
Mashonaland Central	14 159	1.6	22 917	14 846	1.13	16 779
Mashonaland East	7 413	1.5	11 467	3 947	1.25	4 930
Manicaland	702	0.5	357	439	2.6	1 143
Midlands	809	1.7	1 367	1 716	2.42	4 161
Masvingo	237	0.4	86	24	1.4	34
Matabeleland North	87	0.0	4	49	1.91	94
Matabeleland South	165	0.1	23	829	1.9	1 575
<b>Total</b>	<b>46 158</b>	<b>1.5</b>	<b>71 290</b>	<b>34 700</b>	<b>1.36</b>	<b>47 088</b>

Source: Ministry of Lands, Agriculture, Fisheries, Water and Rural Resettlement (2021)

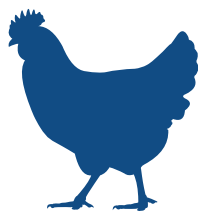
With respect to yield per hectare, on average, the country produced an average yield of 1.5 metric tons per hectare which is quite low to compensate for costs which are involved in the production of soya bean. A review of the provincial contribution to national output showed that 97% of the country's soybeans production in 2019 came from Mashonaland Central, Mashonaland West and Mashonaland East provinces with each contributing 49%, 32% and 16% respectively. In Mashonaland East, the leading districts were Goromonzi, Seke, Murehwa and Marondera with 64%, 13%, 11% and 10%, respectively. The study also noted that in Mashonaland West province the districts with much of the production are Makonde, Zvimba, Hurungwe and Chegutu with contribution of 75%, 18%, 11% and 7%, respectively.

#### (iii) Sunflower Production Trends

Sunflower production in Zimbabwe is directed mainly towards oil extraction. It is largely produced in Natural Regions II, III and IV by the smallholder farmers, who include communal (CA), Small Scale Commercial Farmers (SSCF) and Resettlement Farmers (RF).

In the 2020/2021 farming season, sunflower production increased sharply by 269% from 9 447MT in 2019/2020 to 14 198MT in the 2020/2021 farming season (see table 3.13). Farmers interviewed underscored that the surge in sunflower production was as a result of increased government support and above normal rainy season.

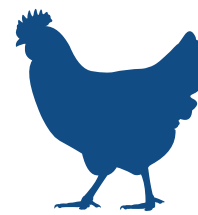





5.4kg feed = 2kg bird

**1957**

**VS**




3.2kg feed = 2kg bird

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Table 3.13: Sunflower Production (MT) By Province

Province	2020/2021			2019/2020		
	HA	T/HA	MT	HA	T/HA	MT
Mashonaland West	2 893	0.41	1 196	2 321	0.50	1 168
Mashonaland Central	2 825	0.68	1 921	4 065	0.43	1 743
Mashonaland East	5 037	0.80	4 018	5 288	0.36	1 930
Manicaland	5 836	0.77	4 505	7 605	0.39	2 935
Midlands	7 402	0.80	5 892	4 590	0.32	1 466
Masvingo	1 090	0.49	536	393	0.21	81
Matabeleland North	1 379	0.34	469	214	0.27	58
Matabeleland South	503	0.37	186	241	0.27	65
<b>Total</b>	<b>26 965</b>	<b>0.53</b>	<b>14 198</b>	<b>24 717</b>	<b>0.38</b>	<b>9 447</b>

Source: Ministry of Agriculture (2021)

Major contributors of sunflower production in the 2020/2021 season are Midlands province (5 892MT), Manicaland province (4 505MT) and Mashonaland East province (4 018MT) (see table 3.13).

**With climatic change looming, it is critical that the government support sunflower production as it is drought tolerant compared to soya bean. This will help ease the oil crisis and protein requirement in the stock feeds production.**

### 3.5 Trends in Production of Cannabis (Mbanje)

It has been noted that about 57 farmers have been licensed in Zimbabwe to produce the crop. Production for cannabis is expected to support the pharmaceutical industry and the one licensed to be grown in Zimbabwe as less harm as compared to other types grown elsewhere which is for drug takers

### 3.6 Trends in Production of Perennial Crops

Table 3.14: Perennial Crops Production

CROP	AREA			YIELD			PRODUCTION		
	2020/21	2019/20	%	2020/21	2019/20	%	2020/21	2019/20	%
Tea	7 462	7 582	-2	5.1	5	2	38 056	40 185	-5
Coffee	676	573	18	0.9	1.01	-11	608	579	5
Orange	4 006	3 994	0.3	39	38	3	156 234	151 772	3
Lemon	1 665	1 439	16	40	42	-5	66 600	60 438	10
Banana	7 844	7 539	4.0	38	36	6	298 072	271 404	10
Apples	192	189	1.6	21	23	-9	4 032	4 347	-7
Peaches and Nectarines	324	414	-22	23	22	5	7 452	9 108	-18
Macadamia	9 674	9 525	2	6	6.5	-8	58 044	61 913	-6
Avocado	2 120	2 051	3	44	41	7	93 280	84 091	11
Mango	4 391	4 285	3	27	25	8	118 557	107 125	11
Sugar cane	74 513	74 189	0.4	79	79	0	5 886 527	5 860 931	0.4
<b>Total</b>	<b>112 867</b>	<b>111 780</b>	<b>0.97</b>				<b>6 727 462</b>	<b>6 651 893</b>	<b>1.03</b>

For the 2020/2021 farming season the following were noted as major observations regarding production patterns of perennial crops:

- There is a general increase in area under plantation crops with the exception of stone fruits where old varieties are being uprooted to plant new improved varieties with better yield and preference on the market.
- Productivity among the plantation crops is generally low due to poor management and inferior varieties
- The decrease in the yield of macadamia nuts by 7.7% is mainly attributed to the effect of incessant rains that caused significant flower and immature nut drop. Some plantations were damaged by Tropical Depression Eloise in Chipinge and Chimanimani.
- There are some emerging crops such as pecan nuts and blueberries that are increasing in area across all provinces.
- The current area under blueberries is 285ha with an estimated production of 1 140MT giving a yield of 4t/ha.
- The total area under Pecan nut is 550ha with an estimated production of 83.5MT coming from 81ha giving an average yield of 1.03t/ha. Most of them are still in the juvenile stage hence the low yield.
- There is insignificant change in production of Sugarcane (0.4%).
- Average yields in newly resettled farms still remains very low (Averaging 60t/ha compared to commercial sector averaging 120t/ha)
- The total production of potato decreased by 24% due to incessant rains that increased the incidence of blights, tuber rots and negatively affected planting operations for the summer crop.

### 3.7 Summary

The main food and cash crops in Zimbabwe include maize, wheat, small grains (millets and sorghum), tobacco, cotton, sugar, horticulture (food and non-food) and groundnuts. The research noted that over the years crop production in Zimbabwe is highly variable due to the heavy reliance on rain-fed agriculture. The stakeholders interviewed underscored that the 2020/2021 season witnessed resurgence of increase in production across all crops on the back of good rains and government support especially on cereals.

This survey noted that the pfumvudza programme, because it is powered with climate smart technologies, sufficient inputs and good agronomic practices, yield per hectare averaged around 5MT per hectare, that is, times average yield of national yield in maize production. The country is yet to provide statistics of cannabis as it is now being grown in Zimbabwe under license.

The lesson drawn here is that the country should adopt the pfumvudza programme across the country with a view to ramp up national productivity and output especially in the communal areas where productivity is the lowest across all crops.

## SECTION 4: PRODUCTION TRENDS IN LIVESTOCK

### 4.1 Introduction

In Zimbabwe, there are a number of livestock species ranging from beef cattle, dairy cattle, small livestock (pigs, goats and sheep) as well as poultry that provide meat and eggs. This section presents trends of each livestock species and reviews current performance against potential or national requirements. The main challenge faced by farmers across all livestock species is the high cost of production that adversely affects farm viability and competitiveness locally and in the region.

### 4.2 Overview of Livestock Production

Beef cattle numbers increased from 5 443 770 cattle in 2019 to 5 478 648 2020 season. Interviewed stakeholders underscored that the major reasons for the increase in numbers include reduction in disease related deaths (especially Tick-borne diseases) and poverty deaths, improved breeding methods, improved pastures and feed due to early rains received.

**Table 4.1: Livestock Numbers by Species by Province**

Province	Cattle		Sheep		Goats		Pigs	
	2019/20	2020/21	2019/20	2020/21	2019/20	2020/21	2019/20	2020/21
Mashonaland West	443 682	450 504	10 451	31 425	437 886	403 383	14 504	34 458
Mashonaland Central	590 547	521 335	90 453	92 607	391 622	396 369	41 820	40 461
Mashonaland East	567 616	572 154	28 037	26 678	272 567	267 287	44 436	34 342
Manicaland	607 990	615 190	84 963	113 825	608 739	548 414	51 760	44 026
Midlands	921 672	989 362	23 476	28 532	562 583	567 142	21 631	22 143
Masvingo	1 028 976	1 019 315	109 675	109 648	659 430	656 989	58 417	58 575
Matabeleland North	670 363	681 045	36 723	57 702	405 569	488 078	30 469	36 740
Matabeleland South	612 924	629 743	163 918	237 493	530 006	647 045	6 471	7 361
Total	5 443 770	5 478 648	547 696	697 910	3 868 402	3 974 707	269 508	278 106

Source: Ministry of Lands, Agriculture, Fisheries, Water and Rural Resettlement (2021)

The same growth pattern was noticed in sheep, goats and pigs. Masvingo, Midlands, Matabeleland North, Matabeleland South and Manicaland provinces are the major producers of cattle with 18.6%, 18.1%, 12.4%, 11.5% and 11.2% of total cattle herd in 2020, respectively (see table 4.1). With respect to sheep production, Matabeleland South, Manicaland, Masvingo and Mashonaland Central are the major producers with 34%, 16.3%, 15.7% and 13.3% of total sheep herd, respectively (see table 4.1).

On goats, in 2020/2021 season, Masvingo, Matabeleland South, Midlands, Manicaland and Matabeleland North are the major producers with 16.5%, 16.3%, 14.3%, 13.8% and 12.3% share of total goats herd in 2020, respectively (see table 4.1).

Evidence from research shows that cattle production remained flat around five (5) million herds since 2001, this could be partly attributed to the outbreaks of foot and mouth disease (FMD) and other disease that was identified as a serious threat to the complete recovery of the cattle herd. Table 4.2 shows the distribution of cattle ownership by farmer group indicating that 69% of the cattle in Zimbabwe are owned by small scale rural farmers, 11% by A1 farmers, A2 and large scale commercial farmers own a combined 10%, old resettled farmers own 6% while small scale commercial farmers own 4%.

**Table 4.2: Cattle Ownership by Farmer Group**

Farmer Group	Percentage of Cattle Owned
A2 and Large Scale Commercial Farming Area	10%
Communal Areas	69%
A1	11%
Small Scale Commercial Farming Area	4%
Old Resettlement	6%

Source: Ministry of Lands, Agriculture, Fisheries, Water and Rural Resettlement (2021)

Farmers interviewed highlighted that the bias towards the concentrations of specific animal species in each province was largely as a result of the resilience of the animals to climatic conditions as well as their role and importance in being part of the coping strategies in dealing with vulnerabilities coming with climate change.

### 4.2 Dairy Production Trends

In 2020 the country's milk production declined by 4% to 76.7 million litres (see table 4.3). At 76.7 million litres per year the country is far short of the 120 million which is required to meet the national demand.

Table 4.3: Dairy Production

Month	2019	2020	% Change
Jan	6 709 436	6 833 594	2%
Feb	5 955 244	6 072 670	2%
March	6 496 573	6 322 129	-3%
April	6 408 839	6 018 454	-6%
May	6 652 145	6 112 843	-8%
June	6 548 104	6 209 711	-5%
July	6 767 445	6 526 207	-4%
August	6 973 747	6 420 324	-8%
Sept	6 807 179	6 559 158	-4%
Oct	6 932 868	6 666 303	-4%
Nov	6 357 543	6 385 168	-3%
Dec	7 085 631	6 568 593	-7%
<b>Total</b>	<b>79 694 754</b>	<b>76 695 156</b>	<b>-4%</b>

Source: Ministry of Lands, Agriculture, Fisheries, Water and Rural Resettlement (2021)

Interviewed respondents highlighted that the disparity between the current milk production and the national demand as a result of the following factors:

- The current dairy herd stands at 39 000 animals with 19 000 milking cows. The national target for milking cows to meet and exceed requirements is above 35 000.
- Average production per cow per day was 13 litres against a target of 18 litres
- The smallholder dairy sector still contributes about 4% of national milk production.
- Productivity remains low due to high cost of breeding stock, stock feed and veterinary drugs.

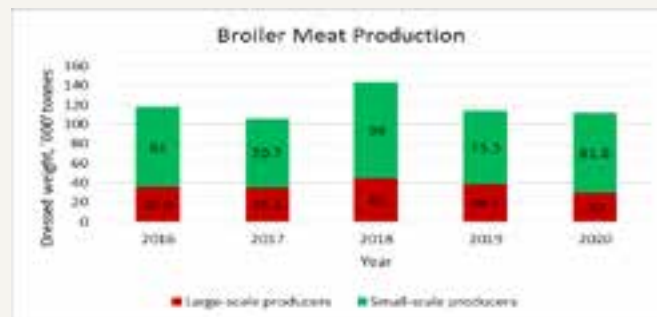
### 4.3 Poultry Production

#### (a) Broiler Production

With respect to broiler production, the following were observed:

- Overall day old chick production decreased by 2.5% from 73.4 million in 2019 to 71.4 million in 2020
- Broiler meat production decreased by 2% from 114 300 tons in 2019 to 111 600 tons in 2020
- Small-scale broiler production continued to dominate production accounting for 73% of the total broiler meat produced
- The Covid-19 pandemic heavily affected poultry in 2020. The covid-19 movement and curfew restrictions resulted in low uptake of day old chicks and restricted marketing of finished broilers and eggs.
- A total of 670 084 chicks were gassed in 2020 compared to 91 079 chicks in 2019 and this is mainly attributed to the covid-19 pandemic restrictions

Figure 4.1: Broiler Production



Source: Ministry of Lands, Agriculture, Fisheries, Water and Rural Resettlement (2021)

#### (b) Table Egg Production

With respect to table egg production, the following were noted:

- There has been a 14% decrease for local layer day old chick production in 2020. 2 637 000 chicks were produced in 2020 compared to 3 065 000 chicks produced in 2019
- Table egg production continues to increase reaching a new high of 59.3 million dozens in 2020, surpassing 2019 production by 18% (50.4 million dozens) and was 7% higher than previous record of 55.3 million achieved in 2016
- Small-scale table eggs production accounted for about 59% of the total table egg production (see figure 4.2).

Figure 4.2: Table Egg Production



Source: Ministry of Lands, Agriculture, Fisheries, Water and Rural Resettlement (2021)

### 1.4 Fish Production

With respect to fish production, the study noted that there has been a decline in fish production over the past two years. Notable declines were in Kapenta catches from 10 366MT in 2017 to 6 000MT in 2020 attributed to overfishing on Lake Kariba. The farmed Tilapia has remained stable largely because of the entry of many small players but production from the country's biggest producer. Of concern is the fact that fish production at the Lake Harvest has gone down significantly from a peak of 10 000t in 2013 to 3 500MT in 2020.

Table 4.4: Fish Production 2015 To 2020.

	2015	2016	2017	2018	2019	2020
Farmed Tilapia(t)	10 510	10 000	10 215	10 900	10 642	10 172
Tilapia from Capture Fisheries(t)	7 896	6 373	6 253	5 552	5 256	3 590
Kapenta(t)	6 752	8 035	10 366	9 475	5 801	6 000
<b>Total</b>	<b>25 158</b>	<b>24 408</b>	<b>26 834</b>	<b>25 927</b>	<b>21 699</b>	<b>19 762</b>

Source: Ministry of Lands, Agriculture, Fisheries, Water and Rural Resettlement (2021)

Interviewed stakeholders underscored that the main challenges being faced by fish farmers inter alia include seasonal water shortages, poor water quality, shortage of fish seed stock, high establishment costs and lack of awareness and high feed costs.

### 4.3 Summary

The livestock sub-sector is an important and integral part of the agricultural sector with beef, dairy, small ruminants, pigs, poultry, apiculture, aquaculture and other small and emerging stock making up the livestock industry. The sub-sector contributes about 19% to the agricultural GDP (Ministry of Agriculture, 2019). The introduction of FTLR, combined with significant fluctuations in the macro-economic conditions, and a transformed agricultural sector post 2000 influenced major changes within the livestock sector. The land redistribution exercise has increased the participation of more than 300,000 newly resettled farmers with varied skills and resources in livestock farming. This transformation of the livestock sector has led to substantial shifts in ownership, use, and livestock management; and associated effects on animal disease management, production and marketing.

Challenges faced in the sector due to the transformation were identified as outbreak of diseases, lack of access to affordable funding, expensive inputs when compared to the region and depressed cereal production.

The study noted that on one hand, livestock herd sizes nationally declined by about 20% for beef, over 83% for dairy, and 26 and 25% for pigs and small ruminants, respectively. While the other livestock species did not recover, the dairy sector is noted to have defied the declining trends due to the presence of an integrated value chain. On the other hand, the productivity of smallholder cattle herds remains very low, with average calving rates of about 45% against a potential of 60%, and off-take rates of about 6% against a recommended 20%.

From the study, it was crystal clear that the average slaughter rate was around 5% of total head. The low slaughter rate was largely contributed by the fact that small scale farmers who controlled 69% of the total head kept cattle as a store of wealth and as a sign of wealth and hence sees slaughtering as wastage. With this observation, it therefore means that small scale farmers are not sweating value in their cows, something which could happen if they were slaughtering and restocking. This observation was similar in other ranges of animals such as goats, sheep and pigs.

Against this background, there is a need to train farmers with a view of building their capacity to run cattle and animal rearing as a serious business. In addition, there is a need to create strong value chain linkages between farmers, the Cold Storage Company, meat processors and abattoirs.

Given that livestock producing districts are in semi-arid conditions key informants noted that the government should incorporate drought mitigation measures in the Command Livestock programme for example through setting up community livestock centres with access to supplementary feeding. The livestock centres which can be operated by the private sector or farmer groups will be designed to provide attendant services to small scale farmers such as cattle buying points, livestock input selling points and farmer training points. Furthermore, the community livestock centres can also be used as artificial insemination and bulling points in a bid to improve rural livestock genetics and quality of beef herds.

The Department of Veterinary Services was urged to put in place measures that completely eradicate the continuous outbreak of diseases such as FMD and Avian Influenza Virus. Furthermore, enforcement and review of statutes on animal health ought to be timeously carried out to avoid unnecessary disease outbreaks. Effective management of the FMD problem can be achieved by moving towards a more decentralised marketing and slaughter system. This development would require the construction of abattoirs in strategic locations with a complementary marketing system that minimises transportation of live animals from high risk areas to low risk areas.

Stakeholders advocated for the implementation of a value chain focused livestock policy whose traits are; enhancement of efficiencies along the livestock value chains, security of livestock resources against natural and man-made disasters, equitable development of livestock value chain stakeholders and protecting consumers against risks arising from livestock development.

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## SECTION 5: ROLE OF FINANCE IN THE AGRICULTURAL SECTOR

### 5.1 Introduction

Agriculture production needs to be supported by a robust financing model that empowers farmers to increase their production and productivity levels. Farmers require capital for equipment and working capital expenditures to optimise their operations. The country requires over \$1.2 billion dollars to effectively fund the agriculture sector yearly. This could come in different forms which include command agriculture, contract farming, bank loans, self-funding and donor assistance. Getting the agriculture sector financed is critical for the success of the sector.

### 5.2 State of Budgetary Allocation to Agriculture

During the dollarization era, national budget allocations to agriculture as a share of total budget averaged at 6.5%. The share of agriculture in the national budget allocations has remained low, less than African Union's Maputo declaration target of at least 10% except in 2010 when it reached 14%.

**Table 5.1: National Budget and Allocations to Agriculture**

Year	National Budget (US\$m <sup>1</sup> )	Allocation to agriculture (US\$m)	Agriculture as a % of the national budget
2009	1,391.00	343.00	2.47
2010	2,250.00	448.00	14.00
2011	2,746.00	122.00	4.40
2012	3,640.00	184.00	8.43
2013	3,860.00	147.00	3.83
2014	4,120.00	155.00	3.76
2015	4,578.00	161.00	3.71
2016	4,434.00	173.00	3.70
2017	4,100.00	291.60	7.11
2018	6,103.00	549.3	9
2019	8,164.00	989.30	12
2020	ZWL\$63 billion	ZWL\$11.4 billion	18.1
2021	ZWL\$421 billion	ZWL\$46.3 billion	11.0

Source: Ministry of Finance

However, in recent years, in particular, in 2019, 2020 and 2021, the government allocated more resources to the agricultural sector at a rate higher than the threshold set by the Comprehensive Africa Agricultural Development Programme (CAADP) (see table 5.1). Globally, Zimbabwe's budget allocation to the agricultural sector is far below the European contribution of 38% which is provided under the Common Agricultural Policy (CAP).

### 5.3 Form of Funding Available for Agriculture

Forms of funding available to farmers established by the study inter alia include smart agriculture/command agriculture, Pfumvudza programme, bank loans, contract farming, joint venture, presidential input scheme, donor funding and self-funding (see table 5.2).

**Table 5.2: Forms of Agriculture Funding in Zimbabwe**

Form of Funding	2017	2018	2019	2020
Command Agriculture (Smart Agriculture)	18%	19%	17%	12%
Contract Farming	20%	22%	24%	20%
Pfumvudza/Intwasa	-	-	-	15%
Bank Loans	10%	8%	9%	7%
Self – funding	24%	25%	24%	20%
Presidential Input Scheme	12%	12%	11%	10%
Donor Funding	7%	7%	8%	8%
Other (Joint Ventures, PPP)	9%	7%	7%	8%

Source: Researchers' Own Observations

In 2020, based on interviewed farmers, major sources of funding are contract farming (20%), self – funding (20%) and pfumvudza programme (15%) (see table 5.2). Notably, the popularity and contribution of funding to the agricultural sector was noted to be falling.

Although at its inception, command agriculture funding attracted a lot of farmers since it does require collateral, however, in recent seasons, our study shows that the interest somehow is falling. In this regard, stakeholders interviewed raised interesting debate on their diverse views on the role of subsidies and how they should be implemented.

- Key stakeholders noted that subsidies should target food crops to secure food security while industrial or cash crops should benefit from integrated value chains that have robust backward and forward linkages. Lessons on the importance of strong value chains in spurring production and productivity could be taken from the dairy and tobacco sub-sectors.
- There is evidence to the effect that subsidies bring distortions in the value chain especially on grains that receive two subsidies with the first one being an inputs subsidy during production and the second one in the form of a price support during marketing.
- The emergence of middlemen in the marketing of subsidised crops especially grains transfers the benefits of the subsidy from the intended beneficiary (farmer) to an opportunist (middlemen) who does not grow the crop in the ensuing season.
- Most farmers argued that inputs supported under the command agriculture are both distributed late and are not adequate to cover the required hectareage.

1 Except for the years 2020 and 2021. These years, the national budget was in local currency (ZWL).

## TONGAAT HULETT MAKING A POSITIVE CONTRIBUTION TO AGRICULTURE AND FOOD SECURITY



• Aerial view of Project Kilimanjaro

**TONGAAT HULETT ZIMBABWE** are a key stakeholder in the agricultural sector in Zimbabwe and continue to play a significant role in the development of agriculture in the nation. Over the years several initiatives have been commissioned directly or in collaboration with the government (or other stakeholders) as part of this contribution to the agricultural sector.

### Project Kilimanjaro

Project Kilimanjaro involves the development of virgin land into sugarcane plantations at both Triangle and Hippo Valley Estates as part of Tongaat Hulett's drive to increase aggregate sugar output at the same time, empowering indigenous private farmers. An initial 203 ha was developed by THZ in partnership with EU which is now being run by Canelands Trust for the local Chiefs. A total of 562ha under Phase 1 was developed by THZ in partnership with local banks which will be allocated to the community as part of empowering indigenous farmers. Plans are to complete the full 4000ha by 2023 under phase 2.

### Private Farmer Community Initiatives

The company has over the years worked towards the growth of Sugarcane maintaining Private Farmer businesses and their communities. A total of 1100 Private farmers command 20 822 hectares (ha) of developed cane area under the sugar industry and constitute 46% of total industry cane area of approximately 45 000ha. At full capacity Private farmers' annual sugarcane production is approximately 1.9 million tons of total industry production of 4.8 million tonnes.

### Food Security In Masvingo Province



• Maize field 2019

#### 1. Winter Maize PPP

The winter maize project is a Public Private Partnership between THZ, Masvingo Development Trust and the Government of Zimbabwe. The project is under the Command Agriculture Scheme and aims at ensuring food security in Zimbabwe.

#### 2. Chilonga Irrigation (PPCP)

The Chilonga irrigation project is a Public Private Community Partnership (PPCP) aimed at enhancing food security at household level.

#### 3. Tongaat Hulett Maize Project

The maize project is targeted at providing food security to Tongaat Hulett employees.



• Maize Handover – Nandi, Chiredzi 2020

#### 4. Seed Maize Project PPP

This seed maize project is a joint initiative between Tongaat Hulett Zimbabwe and Seed Co and can be viewed as one of the many interventions that are key to ensuring food security in Zimbabwe.

A new model of funding that is contract farming was observed as the most common form of funding. Whilst there has been a renewed approach to funding agriculture through the 'Smart Agriculture Model', the participation of most of the majority of banks has been elusive as a result of lack of security of tenure. A number of key informants argued that the 99 – year lease is not bankable and even the so-called smart agriculture programme is at risk since the government of Zimbabwe is the guarantor of a situation which will bring in moral hazards and high default rate.

Joint Venture and partnership finance is increasingly seen as a route for rehabilitating and investing in state farms for example Chisumbanje sugar mill and plantation. Self-funding through employment income is relatively small and is not sufficient for major take-offs especially in farm operations that require rehabilitation and capitalisation. Development aid organisations also provide finance by way of subsidised loans and grants. The Credit for Agricultural Trade and Expansion (CREATE) fund was established by SNV Netherlands Development Organisation and HIVOS (also from Netherlands) to facilitate the raising of capital for lending to commercial agriculture value chain actors in Zimbabwe. The CREATE provides loans ranging from US\$5 000 to US\$200 000.

**(a) How Agriculture Funding is Instituted**

Table 5.3 shows that the greater part of half or more of the agriculture funding go towards acquisition of inputs mainly seeds, chemicals and fertilisers. This reflects that funders are concerned about funding the core aspects of agriculture.

**Table 5.3: Forms of Expenditure paid for the Funding**

	2018	2019	2020
Agriculture inputs (chemicals, seeds and fertilisers)	50%	45%	55%
Farming equipment and land preparation	5%	10%	12%
Labour	8%	12%	9%
Building infrastructure	7%	3%	0.01%
Irrigation infrastructure	15%	15%	10%
Harvesting, packaging, curing and transport	10%	13%	11%
Other (training, workshops etc)	5%	2%	3%

Source: Researchers' Own Observations

Our research showed that a significant amount of funding was directed towards inputs support, that is, 55% of total resources channelled towards the 2020/2021 season. In going around the risks of abuse of funds, funders provide the actual inputs (chemicals, seeds and fertilisers) instead of giving the farmer the money. Due to high demand for irrigation, some funders are funding irrigation infrastructure in the form of Centre Pivots.

**(b) Crops being Funded**

**Table 5.4: Crops funding**

Command Agriculture/ Pfumvudza Funding	Contract Funding Model	Donor Funding
Maize	Maize	Small grains – Finger millet, Pearl millet
Soybeans	Soybeans	Ground nuts
Wheat	Tobacco	Soybeans
Cotton	Wheat	
Small grains – finger, millet, pearl millet	Sorghum	
	Cotton	

Source: Researchers' Own Observations

Command agriculture is funding maize, soya bean and wheat production. The funding has also been extended to livestock, mainly cattle. Contract funding focuses mainly on tobacco, soya bean, sorghum but has since been extended to maize, and wheat.

**(c) Banks Loans**

Finance is available from commercial banks and the interest rates charged by banks average 5% per month for short term loans with 1 - year repayment period while medium and long - term loans are charged 12% per annum. In order to access funding, in addition to the requirement for a viable business proposal, collateral is required.

**Table 5.5: Proportion of Bank Loans for Agriculture by Funding Institutions**

Proportion	Years	% of Banks
1-10%	2018	85%
	2019	73%
	2020	87%
11-20%	2018	10%
	2019	12%
	2020	11%
21-30%	2018	5%
	2019	15%
	2020	17%

Source: Researchers' Own Observations

Table 5.5 shows that in 2020 the majority of financial institutions interviewed, that is, 87%, are spending less than 10% of their funding on agriculture. Likewise, 17% of the interviewed banks showed that 21-30% of the loan book was funding the agricultural sector. This rise, as noted from the study, was driven by the contribution of smart agriculture and its causal effect amongst banks as they crowd in to fund the agricultural sector.

Notable agriculture infrastructure projects funded by banks irrigation equipment, grain storage facilities, tobacco bans, green houses, pen fattening, poultry as well as working capital for inputs and transport logistics. As measures to mitigate risk banks screen farmers for funding and the general requirements are title deeds, stock orders, notarial general covering bonds (NGCBs) over farm machinery and equipment, mortgage bonds and crop stop orders.

Ironically, banks are not willing to lend to small scale farmers who are growing cereals due to lack of collateral but are funding seed growers, tobacco farmers and dairy farmers on the back of a strong value chain which exist in these sub sectors. The 99 year leases should be bankable to allow for long term investment on the farm and capacitate borrowing when using them as collateral.

**(d) Role of Joint Ventures**

As noted in 2018 and 2019 Agricultural Survey Reports, the government of Zimbabwe, through the Joint Venture Act, has opened up the agricultural sector for private investors. Interestingly, the Agricultural and Rural Development Authority scouted for a number of investors with a view to resuscitate its plantations. Using ARDA as a case study, the impact of the joint ventures on the agricultural sector is thus presented in box 5.1.



# Unveiling Our New Look

The new logo design is symbolic of the transformation AMA has undergone. It embodies our commitment to promote sustainable agricultural development and the attainment of Vision 2030. More than ever, AMA is now prioritizing attainment of outcomes stated in our mandate. This will be fulfilled by being an honest arbiter, facilitator, enabler, and a force multiplier to increase production, productivity, and profitability in the agricultural sector



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**Box 5.1: The Role of ARDA in Zimbabwe's Agricultural Sector**

Agricultural and Rural Development Authority (ARDA) is a state owned enterprise under the Ministry of Agriculture Mechanization and Irrigation Development that is responsible for spearheading the advancement of agricultural production and rural development. ARDA derives its mandate from the ARDA Act that seeks to promote development through implementation of vibrant schemes in the agricultural sector with a view of reducing poverty especially in rural areas. The authority has substantial land holding across the country comprising 21 estates with a total of 98,000 hectares of arable land of which 19.4% is irrigable.

The authority's interventions in the agriculture sector are divided into two main categories, namely commercial/business operations and rural development. Commercial operations involve production of various crops and livestock at the 21 estates which operate as strategic business units (SBUs). In that regard each SBU maintains separate accounts that it can use to secure funding. However, in the last decade financing of all the SBUs became a serious challenge despite the floating of the Agriculture Marketing Authority bonds as a source of funding. Production plummeted to less than 30% of capacity because of lack of funding and the authority responded by adopting strategic public private partnerships (PPPs) financing models to resuscitate operations and to date 18 of its SBUs have entered into partnership with private companies under the public private partnership (PPP) scheme. Under the PPP arrangements, ARDA has used a number of frameworks which ranges from joint ventures (JVs), build operate and transfer (BOT), rehabilitate operate and transfer (ROT), management contracts, leasing and share farming arrangements for its SBUs in sugar cane, ethanol, horticulture, maize, wheat, tea, safaris and gaming and livestock production.

The most famous PPP entered into by ARDA is the Chisumbanje Estate where a businessman Billy Rautenbach provided working capital and invested US\$300 million in a sugar cane processing plant under a BOT arrangement. The resuscitation of the Chisumbanje Estates created direct and indirect employment to thousands of people and has increased the production of ethanol used in the blending of fuel. Furthermore, ARDA joined hands with private players in its Antelope Estate to produce cereals. This investment saw 320 direct jobs being created.

In addition to PPPs, ARDA is implementing the Agricultural Based Socio-Economic programmes to improve the livelihoods of rural communities through-out-grower schemes and smallholder irrigation schemes. In this scheme, ARDA provides a ready market to contracted farmers as well as extension services in an effort to boost production and productivity. In the same vein, ARDA is funding infrastructures such as centre pivots and water infrastructures.

With respect to livestock, ARDA partnered with the private sector in the production of cattle in Matabeleland. In this project, ARDA partnered with Kalimba Investments in the production of livestock and pecan nuts in its Balu Estate in Umuza District. Pecan nuts are being produced for the export market while the cattled production is earmarked for the local market.

Source: Researchers' Own Observation Based on the Interaction with ARDA

**(e) Private Sector Credit Schemes**

Private sector companies that are interested in getting uninterrupted supply of raw materials from farmers enter into contract farming arrangements or out grower schemes with farmers. Crops such as tobacco, seed cotton, maize and sorghum as well as dairy and chicken rearing projects are anchored by contract farming schemes.

Contract farming schemes benefit sustain millions of livelihoods in Zimbabwe, for example in cotton alone more than 300,000 households are contracted to grow the crop. The main challenges in contract farming are to do with side marketing, poor loan recovery and poor quality output.

The study noted that the seed industry is supporting seed out growers with an average land size of 15,000 hectares. In support of the out growers' schemes through contract farming, the study observed that companies are applying the following local content enhancement or support programmes:

- Provision of an extension officer for every 400 hectares of land under seed production;
- Provision of working capital and input support. The working capital includes provision of cash for the payment of wages during harvesting;

- Financial support in the establishment of centre pivots, seed drying units, seed graders, on farm weather station, tractors and planters, grading sheds and silos. Since 2015, the seed industry has invested about \$7 million into these key farm infrastructures;
- Provision of a ready market for the seed;
- Overall, the seed industry has played a role of an aggregator where they provide a market for the seed growers whilst at the same time the sector plays a significant role in funding farmers which if left alone have no capacity to access funding from the bank since they have no collateral.

**(f) Development Partners**

Development partners play a critical role in agriculture as they establish a link between farmers' donor funds. The funds are provided under pure grants, match making grants, revolving funds and concessionary loans to individuals and farmer groups. They provide funding for incentives to reinvest in agriculture, increase production and in the long run, contribute to food security and income generation. Development partners provide financial assistance to the agriculture sector and private companies with the aim of coming up with innovative solutions to challenges being faced by farmers. Whilst they work with banks for farmers to get financial assistance thus through financial linkage/financial inclusion programmes. Development Partners establish a link between agriculture and finance as they source funds from donors.

Our study noted that development partners such as FAO provide developmental technical and financial assistance to farmers which is aimed at fostering food security, income generation and poverty alleviation. Likewise, we noted that SNV provides training and mentorship to youth interested in agriculture especially with specific focus on poultry, rabbits and mushroom production.

In addition, development partners such as the COMESA Clearing House are funding the establishment of the Bee Centre with a view to support honey production as well as provision of funding for the acquisition of ginneries.

In the livestock sector, the research noted that SAT supports beef production through the Cattle Business Centre Model. In this model, SAT is establishing infrastructure owned by community or small to medium beef producers in the targeted districts. SAT also assist smallholder poultry production targeting egg and broiler production.

**5.4 Unlocking Funding into Agriculture**

From a government perspective, as noted by FAO (2017), the government must provide a catalytic role in creating an environment for mobilising funding into the agricultural sector. This catalytic role can be through the provision of incentives to banks and companies funding farmers, provision of funding into key infrastructures such as irrigation, road rehabilitation and other infrastructures such as provision of electricity. In order to finance this, the government must allocate at least 10% of its budget into agriculture in line with the CAADP. This is expected to attract financiers to participate in funding the agriculture.

International experience as noted by the United Nation Conference for Trade and Development (UNCTAD) (2014) showed that commodity exchanges provide an effective platform for funding agricultural sector as well as an effective market for farmer produce (see box 5.2).

**Box 5.2: Unlocking Finance Through Commodity Exchange**

Africa's smallholder farmers have long been victim to fragmented, disorganised markets where they have had to sell their products for lower than the market price. Commodity exchanges offer more stable, more ethical trading platforms whereby farmers can benefit from fairer transactions and learn how to make wiser marketing and investment decisions. There has never been a better time to increase the number of commodity exchanges in Africa and ensure fledgling farmers have every chance of survival. Africa's poor tend to be its smallholder farmers. They remain poor because they have no money to buy good quality seeds and fertiliser and no money to invest in machines or techniques that can optimise their farming (e.g. irrigation). With little infrastructure to connect their villages to the markets where agri-products are bought and sold, they are left cut off from a stable and profitable supply chain. This type of market fragmentation means that many African smallholder farmers are caught in a cycle of poverty. UNCTAD noted that the fragmentation of farmers led them to exploitation of farmers. In a pattern established over decades, various intermediaries, from private traders to public marketing boards, have taken advantage of the disorganised markets. Typically, such intermediaries can enjoy being the only purchaser a farmer has contact with. This lack of competition means they can ensure that a farmer has no choice but to take whatever price is offered. This is sometimes as low as 10% of the on-going market price (UNCTAD, 2014). Organised and regulated commodity exchanges were noted as effective platforms for the provision of revolutionary changes to the way African smallholder farmers fare.

UNCTAD (2014) explained the benefits of commodity and derivatives exchanges as well as a concise explanation of why they are important:

*"Commodity Exchanges are highly efficient platforms for buyers and sellers to meet; primarily to manage their price risks better, but also to improve the marketing of their physical products. They [make] economies more inclusive, boosting the links between agriculture and finance, and making the commodity sector more efficient and competitive."*

A study conducted under the auspices of UNCTAD identified a total of 69 positive impacts that commodity and derivatives exchanges offer. The most important can be summarised as follows: Quick and easy dissemination of market price and other information which farmers would not otherwise have access to. This can be achieved without any dramatic technological advances: in India, for example, the national post office delivers daily price information to villages, which is then displayed on blackboards in prominent places. Once farmers know what the market price is, they can enjoy fairer negotiations with purchasers and can make more informed judgements on what to invest in the future and how to market it. A free and open auction system which ensures farmers can sell their goods close to the market price, or even above it. This is another feature that can help farmers make more informed decisions on their future farming activities such as what to invest in and how to diversify their sources of income. The opportunity to 'hedge' against volatile prices, meaning farmers can 'lock in' their sales price at the time of planting particular crops. This way farmers can enjoy an element of certainty about the price they will receive at harvest and can budget accordingly. They can choose which crops to grow and judge when is the best time to sell them on the market, minimising the risk of losing revenues as prices fluctuate. Fewer risks to financiers, who can use warehouse receipts as collateral ready to liquidate in an event of default. Traditionally, financiers have considered agriculture as a high risk and low profit business for standard modes of bank-lending. As a consequence, farmers and others in the commodity value chain pay disproportionately high levels of interest. Through commodity exchange 'ecosystems' (such as warehouses) forms of financing have been developed that can reduce financiers' risk and costs of delivery by linking traditional financial tools with commodity exchange services. A stimulus for infrastructure development, as an exchange, by definition, can only truly flourish with as many participants as possible. More commodity exchanges would provide African governmental bodies and investors with an impetus to create better roads to connect farmers to markets and reduce fragmentation.

Source: UNCTAD (2014)

As noted in the national budget statement of 2021, the government of Zimbabwe set aside US\$500,000 contribution to equity for the establishment of the commodity exchange which will provide a market led platform for the financing and marketing of agricultural commodities in Zimbabwe.

**5.5 Summary**

International experience as noted by FAO (2017) shows that there is a positive causal relationship between access to finance in the agricultural sector and agricultural productivity. In Zimbabwe, evidence shows that commercial farmers who have access to funding are getting yields averaging

1.5 metric tons per hectare while communal farmers who rarely get funding produce around 0.4 metric tons per hectare. However, what was striking to note is the fact that 87% of the banks interviewed are lending less than 10% of their total loans. Outside the traditional loans from the banks, the study noted that the major source of funding which was made available to farmers was through contract farming and presidential input support.

The study noted that where contract farming was used, the contracting company became the aggregator and on the back of the strength of its balance sheet has been able to access funds from the farmers who have no collateral. This has resulted in the elimination of the challenges related to security of tenure. This observation was largely noted in the tobacco, food and beverages sectors. However, one key feature which enabled the enhancement of these value chain financing models relates to the business environment in these sectors. For example, in the tobacco sector, the crop is sold under an auction system which allows for efficient price recovery as opposed to cereals such as soya bean, maize and wheat which are under price control regime.

Based on this foregoing, it is important that the government liberalise the agricultural sector and operationalize the commodity exchange which will come with effective financial instruments such as warehouse receipts and derivatives which were noted to be effective in funding the agricultural sector globally. In the same vein, fiscal incentives aimed at supporting companies who are funding the agricultural sector under contract farming should be considered with a view of encouraging the practice.

**SECTION 6: IMPACT OF CLIMATE CHANGE ON AGRICULTURE PRODUCTIVITY****6.1 Introduction**

Climate change has adverse effects on the country, mainly due to an increase in the intensities and/or frequency of natural events, drought and floods occurrence in Zimbabwe. The effects of adverse natural events are already being felt. Extreme climate events are having a strong impact on agricultural production in the country and, in turn, on GDP. The agricultural sector is particularly prone to crop yield loss and damage to livestock, fishery and aquaculture infrastructures, and irrigation structures. Two critical impacts of climate change not only on agriculture but also rural livelihoods are reduced water availability, especially for small-scale agriculture, and variability of rainfall.

**6.2 Impact of Climate Change**

The majority of stakeholders interviewed, that is, 98% confirmed over years climate change has a significant impact on agricultural productivity. Extreme weather patterns affect crop productivity as high temperatures or excessive rainfall have an adverse effect on both crop and livestock production and productivity. Respondents interviewed highlighted that the rain season in Zimbabwe is no longer falling in the gazetted months and that affects the farmers' planning calendar as the actual planting and stalk destruction dates for crops such as tobacco and cotton no longer match with government's legislated dates.

On a refreshing note, all the stakeholders interviewed confirmed that the 2020/2021 season had effective and good rain patterns which contributed to the best agricultural season since 2001 if the statistics on yields and output are anything to go by.

**6.3 Forms of Climatic Change Experienced in Zimbabwe**

Over the years, the major forms of climate change experienced in Zimbabwe which negatively impacted on yields and output are droughts, floods, increased temperature, increased rainfall variability and declining precipitation (see table 6.1).

**Table 6.1: Forms of Climatic Change Experienced in Zimbabwe**

Form of Climate Change	Years	% of Respondents
Increasing Temperatures	2018	12%
	2019	15%
	2020	8%
Rainfall Variability	2018	17%
	2019	17%
	2020	6%
Declining Precipitation	2018	18%
	2019	21%
	2020	15%
Drought	2018	30%
	2019	42%
	2020	20%
Floods	2018	23%
	2019	5%
	2020	3%

Source: Researchers' Own Observations

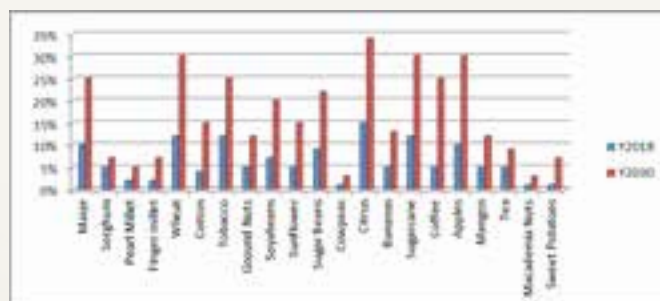
Respondents noted that over the years droughts, floods, declining precipitation and rainfall variability were major mechanisms which affected agricultural productivity caused by climate change vulnerability (see table 6.1). In 2019, contrary to observations made in 2018, of interest to note is the increase in the contribution of drought and declining precipitation to agricultural productivity as well as fall in the contribution of floods.

However, in the 2020/2021 season, the stakeholders interviewed underscored that the prevalence of climate change vulnerability, in all forms, was reduced. For example, as noted in table 6.1 only 8% of the respondents interviewed reported that increasing temperatures contributed to low yields, that is, down from 15% in 2019.

**6.4 Estimated%age loss in Terms of Specified Crops (2018 and 2030)**

Figure 6.1 shows that the crops which were negatively influenced by climate change were maize, wheat, tobacco, citrus, sugarcane, coffee and apples. The effects of climate change are expected to increase by 2030. This calls for urgent action by government and private stakeholders to take up some measures to reduce the negative effects of climate change.

**Figure 6.1: Estimated%age loss in terms of specified crops (2018 and 2030)**



Source: Ministry of Agriculture (2018)

A review of secondary data from NAPF 2018 statistics reveals that climate change has triggered yield reductions for Southern Africa. These have been estimated to decline by averages of between 11% and 30% by 2030. The NAPF further states that climate projections up to 2070 for Zimbabwe show a 2.5 degrees Celsius increase in temperature. On the other hand, rainfall will decrease by 4.1% and 5.9% by 2030 and 2070 respectively. The effects of temperature changes on agricultural production will be more pronounced in the south-western parts of the country where temperatures will increase by 2.2 degrees Celsius; while those triggered by rainfall reductions will be highest in Mashonaland Central, Mashonaland East, Manicaland, and Masvingo provinces.

Key respondents interviewed highlighted that the Zimbabwean government has recognized the importance of dealing with climate change, numerous programmes and projects have been designed and implemented, but there are still many shortcomings. Respondents revealed that at the government level, arrangements for climate change adaptation are mostly weak and lack an appropriate legislative framework. Donors and NGOs also complimented government efforts, but the resulting efforts related to climate change in agriculture are highly fragmented and ad hoc. Vision 2030 does not deal explicitly with the effects of climate change. In fact, climate change is normally placed under the theme of environmental management in hazard risk reduction.

**6.5 Summary**

The research shows that climate change vulnerability negatively impacts productivity in the agricultural sector. Against this background, there is a need to come up with practical measures aimed at mitigating and adapting to the effects of climate change.

One effective way which has been adopted by the United Nations Framework Convention on Climate Change to compact climate change is the adoption of climate-smart agriculture which aims at sustainably increasing food security and incomes, and adapting and building resilience to climate change. Climate – smart agriculture connects other innovations, such as conservation agriculture, agroecology, agroforestry and the development of crop varieties that are more tolerant to pests, diseases, drought, waterlogging and salinity (FAO, 2013). FAO (2017) noted that climate-smart agriculture has promoted mixed crop-livestock systems and sustainable livestock production, which integrate environmental and production objectives through, for example, the rotation of pasture and forage crops to enhance soil quality and reduce erosion, and the use of livestock manure to maintain soil fertility.

In climate-smart agriculture, agroforestry systems are an important means of sustainably producing food while conserving ecosystems, especially in marginal areas prone to environmental degradation. Zimbabwe can work with development partners such as the DFID who are already working with farmers in Zimbabwe in compacting climate change through climate smart agriculture.

**SECTION 7: AGRICULTURE PRODUCTION INDICES**

**7.1 Introduction**

It is important to develop agriculture indices as they help inform decision making. Such indices are required in order to study the trends over time in respect of area, yield, production, productivity, prices, etc. and for studying the comparative picture of the performance of agricultural sector. Zimbabwean agriculture is two-fold that is crop and animal. This study assesses Zimbabwe's three groups of indices which are crop production ratios, livestock ratios and farmers' livelihood ratios.

**7.2 Zimbabwe Crop Production Ratios**

The crop production ratios were calculated based on the average yield figures. As noted by FAO (2016), the index or ratio may be easily calculated based on year-to-year improvements or based on the selected base year for benchmarking or comparison.

Year on year trend between seasons, the study adopted the following formula:

$$\left[ \frac{\text{Total average yield for current season}}{\text{Total average yield for previous season}} \times 100 \right] \text{ Equation 1}$$

According to this formula any%age below 100% means there is negative growth for the current period compared to the previous period.

**In terms of this formula, agriculture output was 299.37% of the previous season, reflecting a positive growth of 199.37% in 2020/21 season from 2019/20 season (Table 7. 1). This was mainly attributed to the bumper harvest of major crops such as maize. Based on national requirements,**

output has increased by 70.53%, which reflects that there is about 70% of the current output which can be pushed to next season. Therefore the country can build reserves.

Benchmarking with the base year, the study adjusted the formula to:

$$\left[ \frac{\text{Total average yield for current season}}{\text{Total average yield for base season}} \times 100 \right] \quad \text{Equation 2}$$

In terms of this formula any percentage below 100% means there is negative growth for the current period compared to the base year period.

In terms of the study, crop production in the 2020/21 season based on the 2016/2017 season as base year, agriculture production was 145.3% showing a positive growth of 45.3% (Table 7. 1).

Table 7.1: Crop Production Ratios

Crop Production Ratio	Output Ratio	Growth Ratio
Using National Requirements	170.53%	70.53%%
Using Year on Year	299.37%	199.37%
Using Base Year (2016/17)	145.3%	45.3%

Source: Author's Own Calculations

### 7.3 Zimbabwe Livestock Production Ratios

#### 7.3.1 Calving rates

Calving rate measure of productivity in livestock. Calving rate is a production parameter that a cow/calf producer can record because it has both an input and output components. Inputs include genetic selection, nutrition and management, management during the breeding season, management during the calving season and management from calving to weaning. The output component is based on reproduction which influences total kilograms of weight that is available for sale at weaning. It is calculated as a number of calves weaned (numerator) divided by the number of females exposed to produce that calf (denominator) and this number times 100 to get it to a percentage as shown in Equation 3.

$$\left[ \frac{\text{number of calves weaned}}{\text{number of cows exposed}} \times 100 \right] \quad \text{Equation 3}$$

$$\left[ \frac{\text{number of calves weaned}}{\text{number of cows exposed}} \times 100 \right] \quad \text{Equation 3}$$

Calving rate figures observed were between 32% and 50% with an overall national average of 40% for 2020/2021 which demonstrates positive improvements from 2019/20 seasons which ranged from 22.9% and 38.7% with an average of 33.37%. The national average is currently between 33 and 45% across different farm sectors (Table 7.2).

Table 7.2: Calving Ratios

Province	Calving Rates (%)					
	LSCF	A2	A1	SSCF	OR	CA
Mashonaland West	38	47	37	45	38	32
Mashonaland Central	35	42	32	42	36	26
Mashonaland East	50	47	44	48	37	36
Manicaland	35	43	37	38	38	37
Midlands	44	47	38	47	32	32
Masvingo	44	44	48	46	39	38
Matabeleland North	41	42	48	46	39	38
Matabeleland South	33	49	40	42	40	41
National Average	40	45	38	43	37	33

Source: Author's Own Calculations

The national average calving rates remain very low against a national target of above 60%. The low calving rates are attributed to several aspects

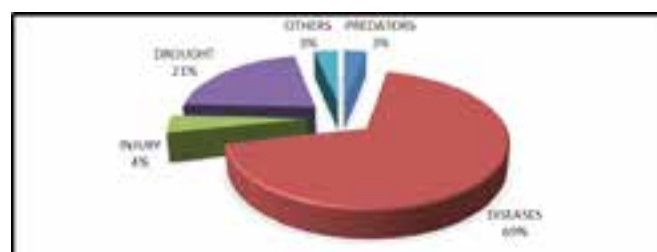
affecting the farmers which are: the previous drought leading to poor nutrition and poor quality bulls; low bulling ratios in the smallholder sector also present challenges for those farmers who do not own bulls; and multiple use of cows including as draft power affects body condition hence low fertility rates for rural animals.

#### 7.3.2 Cattle Mortality

Cattle mortality rate was measured using the following formula.

$$\left[ \frac{\text{number of cattle died during the year}}{\text{Average Headsize}} \times 100 \right] \quad \text{Equation 4}$$

A cattle herd mortality of 4.2% was recorded in the year 2020. This is still relatively high, that is more than 2% as expected. The relatively high figures were attributed to the outbreak of January disease (Theileriosis), a tick-borne disease. In addition, some deaths of cattle were attributed to hunger and/or water shortages (Veterinary Services, Annual Report, 2020). Noted cause of deaths were as provided in Figure below.



Source: Author's Own Calculations

Figure 7.1: Noted Causes of Cattle Deaths

Figure 7.1 shows that the major causes of deaths in cattle were diseases (69%) and droughts (21%). Accordingly, farmers should always be prepared to reduce the effects of cattle poverty deaths by providing supplementary feed, i.e. harvesting grass from provinces in abundance.

Table 3: Calf Mortality Rates by Provinces

PROVINCE	MORTALITY (%)
Mashonaland West	29
Mashonaland Central	29
Mashonaland East	29
Manicaland	26
Midlands	27
Masvingo	28
Matabeleland North	25
Matabeleland South	28
National Average	27.6%

Source: Ministry of Lands, Agriculture, Fisheries, Water and Rural Resettlement (2021)

Calf mortality across provinces ranges from 27% to 29% which is against the recommended 2%. Reason being poor calf management, predation, housing, nutrition and humans competing with the calf for milk. Notable provinces which are above the national average of 27.6% were Mashonaland West, Mashonaland Central, Mashonaland East, Masvingo and Matabeleland South. These provinces require robust government DVS efforts to reduce calf mortality as it is from this that we can build a national herd.

#### 7.3.3 Bulling Ratios

This measures the availability of bulls to provide bulling services for farmers' cows and heifers.

Table 4: Bulling Ratios by Farm Sector

Season	LSCF	A2	SSCF	A1	OR	CA
2018/19	20	15	12	10	11	9
2019/20	17	14	12	10	12	9
2020/21	21	14	11	10	12	9

Source: Ministry of Lands, Agriculture, Fisheries, Water and Rural Resettlement (2021)

The national bulling ratio ranges between 1:9 in the small scale farming sector and 1:21 in the large scale farming sector against a national target of 1:20-25. As a management measure, excess bull calves can be converted to steers or draft power.

### 7.3.4 Beef Cattle Offtake

**Table 5: Cattle Offtake by Farming Sector**

Farming Sector	Off-take (%) 2020	Off-take (%) 2019
LSCF	10	8
A2	12	7
A1	8	4
SSCA	7	5
OR	6	4
CA	5	3
<b>National Average</b>	<b>9</b>	<b>6</b>

Source: Ministry of Lands, Agriculture, Fisheries, Water and Rural Resettlement (2021)

The national average beef cattle off-take was 6% in 2019 and increased to 9% in 2020 against a 15% target. This is attributed to drought distress sales and slaughters done to mitigate losses and also to get money for supplementary feeding for the rest of the herd. Some abattoir owners assisted with pen feeding strategies where they would recover their finances at marketing.

### 7.4 Farmers Livelihood Ratios

It is critical to report farmers' livelihoods ratios as these help in assessment of poverty levels. The first assessment is done of the household dietary diversity score (HDDS) which is used to assess the extent to which households had access to food in the right quality and quantity. A number of approaches are used to determine HDDS including the 24-hour recall and the seven-day method. In this study, the 24-hour recall period was used, in this case 10 food groups were identified: grains, tubers, pulses, vegetables, fruits, meat, eggs, dairy, sugar and oils/fats as shown in Figure 1. This provided a proxy for the availability of the main nutrients required for a normal and healthy life: carbohydrates, vitamins, minerals, and proteins for most farmers in Zimbabwe. The HDDS was computed as the unweighted sum of each of the ten food groups.



Figure 7.2: Food dietary diversity among farmers and rural households

Figure 7.2 revealed that the diet of farmers is dominated by grains and vegetables in the form of maize and greens. There is a deficit in terms of dairy, eggs, and pulses. These findings could potentially change if conducted at different times of the year. Table 7.6 provides the mean values for farmers' dietary diversity scores disaggregated by eight provinces.

**Table 7.6: Food dietary diversity among farmers in Zimbabwe (24-hour recall)**

Province	HDDS 2019/20	HDDS 2020/21
Manicaland	5.10	6.2
Mashonaland Central	4.59	5.8
Mashonaland East	4.82	6.6
Mashonaland West	4.93	5.9
Masvingo	4.13	5.6
Matabeleland North	5.50	5.1
Matabeleland South	5.32	5.7
Midlands	4.98	6.2
<b>National Average</b>	<b>5.05</b>	<b>5.9</b>

Source: ZIMVAC (2021)

Table shows that Mashonaland East had the highest HDDS and Matabeleland South had the lowest. It can easily be observed that most of the provinces which are high in crop production have lower HDDS than those which are livestock producers. In terms of scores below 3 is regarded as low, between 4 and 5 as average and greater than 5, acceptable. As such all provinces scored above 5 showing that they have acceptable dietary levels in 2021.

The greater part of the diet for most rural households is dominated by cereals. Therefore, it is critical to understand the average rural household cereal production.

### 7.4.1 Average Rural Household Cereal Production

**Table 7.7: Average Rural Household Cereal Production**

Province	Cereal Production (kg)	
	2019/2020	2020/2021
Manicaland	213.4	337.5
Mashonaland Central	301.9	718.9
Mashonaland East	284.5	485.2
Mashonaland West	319.4	888.2
Masvingo	164.5	401.7
Matabeleland North	144.9	562.8
Matabeleland South	85.7	360.5
Midlands	213.9	584.3
<b>National</b>	<b>219.7</b>	<b>543.8</b>

Source: Ministry of Lands, Agriculture, Fisheries, Water and Rural Resettlement (2021)

Table 7.7 shows that nationally, the average household cereal (maize and small grains) production was 543.8kgs (2020/21) compared to 219.7kg from last year (2019/20). The highest average cereal production was reported in Mashonaland West (888.2kgs) and the lowest in Manicaland (337.5kgs). Although the average household cereal production was high, efforts need to be channeled towards post-harvest management.

### 7.5 Adoption of Renewable Energy

It was critical to ascertain how farmers are adopting use of renewable energy. Renewable energy is an energy source that naturally replenishes itself and is inexhaustible in duration, but limited in the amount of energy that is available per unit of time. In this instance, renewable energy sources include solar energy, wind, falling water, the heat of the earth (geothermal), and plant materials (biomass).

**Table 8: Farmers Using Solar and Biogas Energies**

Province	Solar		Biogas generation	
	Yes	No	Yes	No
Manicaland	54%	46%	1%	99%
Masvingo	52%	48%	1%	99%
Mashonaland Central	55%	45%	1%	99%
Midlands	55%	45%	1%	99%
Mashonaland West	64%	36%	1%	99%
Mashonaland East	62%	38%	2%	98%
Matabeleland North	68%	32%	1.2%	98.2%
Matabeleland South	50%	50%	1.5%	98.5%
<b>Total</b>	<b>57%</b>	<b>43%</b>	<b>1.25%</b>	<b>98.75%</b>

Source: Ministry of Lands, Agriculture, Fisheries, Water and Rural Resettlement (2021)



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The tables show that 57% of farmers were adopting solar energy and very few farmers (1.25%) were using biogas as a source of energy. In the study, due to lack of electricity connectivity to small scale areas and cost involved in connecting electricity, the most commonly used form of renewable energy is solar energy. This use of other forms is still at the lower levels due to cost and construction required (biogas) and the fact that it is meant for cooking, farmers prefer to use firewood or other forms of energy. Table 3 shows the proportion of farmers using these forms of renewable energy technologies.

## 7.6 Summary

The survey results showed positive growth rates for crop production for the period under review. The positive growth was mainly attributed to the good agriculture season for 2020/21. Besides such good agricultural rain seasons, some farmers were notably affected by dry spells and early season closures. Therefore, farmers are encouraged to have irrigation infrastructure to mitigate such effects of drought, dry spells or early closures of seasons. Irrigation infrastructure can be acquired through government initiatives for improved irrigation infrastructure and partnering with other institutions which provide irrigation equipment.

The survey also revealed high cattle mortality rates. These mortality rates were mainly attributed to January disease which is a tick-borne disease and lumpy skin diseases, which can be controlled by dipping cattle regularly. It is critical to educate farmers to dip their cattle at farms as the government is having challenges to provide the service. Farmers must acquire their own dipping chemicals to compliment government efforts.

The study revealed that there is an increase in farmers using renewable energy especially the use of the solar system. This was common to most farmers who are off the grid especially the A1 and communal farmers.

## SECTION 8: GAPS AND OPPORTUNITIES IN ZIMBABWE'S AGRICULTURE SECTOR

### 8.1 Introduction

This section identifies gaps and opportunities that are available in the agriculture sector in Zimbabwe. These are identified on the basis of need, demand, the potential, risk and relevance on the value chain.

### 8.2 Gaps and Opportunities in Agricultural Sector

#### 8.2.1 Crops

Zimbabwe, as noted by the International Trade Centre, imports annually cereals worth \$510 million and a further \$250 million on oil seeds. These cereals and oil seeds include wheat and soya bean which have reported serious deficits as shown in table 8.1. This therefore presents investment opportunities for both agro-processors and the financial sector.

**Table 8.1: Crop Production Compared to National Requirements**

Crop	Requirements (MT)	Available Food Production (MT)	Surplus/Deficits (MT)
<sup>1</sup> Cereal (Maize, sorghum, pearl and finger millet)	1 797 435	3 065 140	1 267 705
<sup>2</sup> Groundnut	104 850	208 864	104 014
<sup>2</sup> Roundnut	134 808	37 156	-97 652
<sup>2</sup> Sugarbean	104 850	30 613	-74 237
<sup>2</sup> African Peas	89 872	38 452	-51 420
<sup>2</sup> Sweet Potato	314 551	422 613	108 062
Total	2 546 367	3 802 838	1 256 471

Source: Source: Ministry of Lands, Agriculture, Fisheries, Water and Rural Resettlement (2021) and Researchers' Own Observation

Crop and livestock production and productivity has significantly declined and remains too low to sustain agricultural growth. The survey noted that several factors combine to engender low productivity and low production in

agriculture. These include: low skills and knowledge base of farmers; a weak research, education and farmer training and extension system as a source of technology and innovation; the shortage of inputs and equipment; low levels of mechanisation; reliance on rain-fed agriculture; limited access to market information and marketing facilities; limited access to finance; limited security of tenure; pest and disease attacks including the fall armyworm; low capacity to manage post-harvest losses; and increased incidence and intensity of climate shocks such as El Niño.

### 8.2.2 Irrigation and Water Management

Irrigation plays an important role in agriculture because it reduces farmers' vulnerability to weather and climate shocks and risks. The study noted that Zimbabwe has a potential to irrigate more than 2 million hectare of land and yet, less than 206,000 hectares are currently under irrigation. The utilisation of existing water bodies, underground water and transboundary water bodies such as Zambezi River and Limpopo River can make a significant contribution to food security and agricultural growth in the country, especially in drought periods. However, the available water bodies are currently under-utilised, mainly due to lack of investment in irrigation development, rehabilitation and modernisation. A number of stakeholders interviewed noted with concerns that the majority of these water bodies are silted. And, as such, there is a need for massive investments towards desilting. However, regardless of this observation, the study noted that Zimbabwe has potential irrigable land which is not being fully utilised (see table 8.2).

**Table 8.2: Opportunities for Irrigation**

Name of Dam	Province	Potential Irrigable Area (Ha)	Natural Region
Zhowe	Matabeleland South	500	V
Muzhwi	Masvingo	680	IV
Manyuchi	Masvingo	330	V
Osborne	Manicaland	1700	IV
Mbindangombe	Masvingo	100	V
MTshabezi	Matabeleland South	300	V
Tshatshani	Matabeleland North	230	V
Mwarazi	Manicaland	400	IIB
Mwenje	Mashonaland Central	400	IIA
Mazvikadei	Mashonaland West	1000	IV
Tokwe Mukosi	Masvingo	25000	IV
<b>Total</b>		<b>31140</b>	

Source: Ministry of Lands, Agriculture, Fisheries, Water and Rural Resettlement (2021) and ZINWA (2021)

Investment opportunities presented through various irrigation schemes which look very lucrative considering the fact that climate change vulnerability is negatively affecting yields. Investment into irrigation will not only mitigate climate change but also raise productivity and national output considering the fact that farmers will not have to wait for the rains.

#### 8.2.3 Opportunities in Farm machinery and Agricultural Mechanization

The limited access to agricultural machinery and implements is compromising timeliness of farm operations. For instance, the current national requirements for tractors and combine harvesters stands at 40,000 and 400 units respectively, against the currently available 14,000 tractors and 300 combine harvesters (Ministry of Agriculture, 2020). This is maintaining the labour-intensive narrative about the agricultural sector in the country. Farm structures for both crops and livestock such as greenhouses, animal handling, crop produce handling, tobacco curing barns, sales pens, dipping tanks, storage facilities and machinery sheds as well as accessible roads are in a poor state and require rehabilitation. Insufficient skills in the use and maintenance of agricultural infrastructure and technology negatively impacts the lifespan of the agricultural infrastructure. From this perspective, there is scope for investment into mechanisation of the agricultural sector in Zimbabwe.



Table 8.3: Available Machinery Nexus National Requirement

Type of Machinery	Number of Machinery/Implements				
	National Requirement	Functioning	Need Re-furbishment	Total Available	Deficit
Tractors	40 000	6000	4 000	10 000	30 000
Combines	600	150	50	200	400
Ripper	15 000	1 000	200	1 200	13 800
Disc Harrow	25 000	3 000	500	3 000	8 000
Planter	20 000	2 000	200	2 200	17 800
Spreaders	5 000	400	100	500	4 500
Boom sprayers	5 000	800	200	1 000	4 000
Sheller/threshers	15 000	400	100	500	14 500

Ministry of Lands, Agriculture, Fisheries, Water and Rural Resettlement (2021)

Specific areas of opportunities relate to national deficits in shellers, boom sprayers, spreaders, planters, disc harrow, rippers, combined harvesters and tractors as presented in the last column of table 8.3.

From a financial sector perspective, there is massive scope for lease finance for the acquiring of tractors and combined harvesters. By virtue of the fact that most of the equipment in table 8.3 are fixed assets and can last for 10-15 years, can be used as collateral when issuing funding linked to these equipment meaning that the need for collateral from the farmers may not arise.

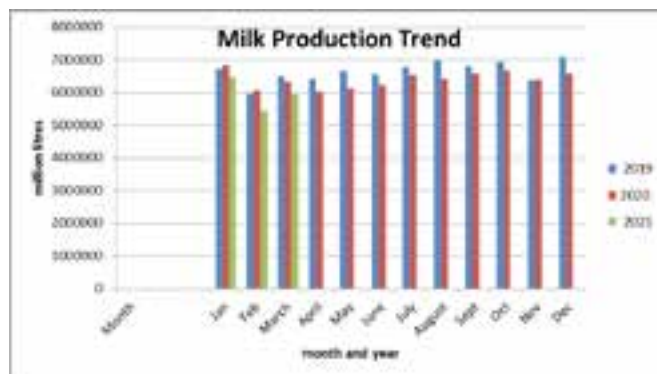
**8.2.4 Opportunities in Livestock production**

The study noted that there are numerous opportunities in the livestock sector which range from the actual rearing of animals, the production of stock feeds and the provision of veterinary drugs and services. The cattle herd to cater for beef and milk needs is not enough to meet the demands of local and export markets.

Investment opportunities in the livestock sector are reflected in the shortages which are apparent in the dairy sector. For example, our study shows that:

- The current production level is around 75 million litres which is still short of the 120 million litres for national requirements to be met (see figure 8.1).
- The current dairy herd stands at 39 000 animals with 19 000 milking cows. The national target for milking cows to meet and exceed requirements is above 35 000.
- Average production per cow per day was 13 litres against a target of 18 litres
- The smallholder dairy sector still contributes about 4% of national milk production.
- Productivity remains low due to high cost of breeding stock, stock feed and veterinary drugs.

Figure 8.1: Trends in Milk Production



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In beef production, the sector requires private sector re-stocking initiatives to complement the Command Livestock programme by the government. In that regard, banks can avail funding for cattle restocking programmes. Alternatively, abattoirs and other upper value chain participants can also participate in the restocking exercise by providing funding arrangements such as contract production or out-grower schemes.

Investment in veterinary drugs and veterinary services is important to the sector as a lot of farmers have lost their animals to diseases. Farmers require good quality drugs that are affordable.

In addition, evidence from the Stockfeed Manufacturers Association shows that there is a production gap of 30%, 21% and 26% for layers production feeds, beef maintenance feeds and layers feeds, respectively. This presents opportunities for stockfeed manufacturers who intend to upscale production or invest into new factories.

**Table 8.4: Investment Opportunities and Risks in Zimbabwe's Agricultural Sector**

Animal	Opportunities	Risk
<b>Cattle</b>	<ul style="list-style-type: none"> <li>Conducive environment for cattle production</li> <li>High Demand in domestic market</li> <li>Potential for export – organic meat</li> <li>Earnings in Foreign currency</li> <li>Growing demand for Canned beef</li> </ul>	<ul style="list-style-type: none"> <li>Outbreak of diseases e.g foot and mouth, tick borne diseases</li> <li>Stock theft</li> <li>Inbreeding challenges</li> <li>Poor agriculture practices</li> <li>Complex logistics – transportation</li> </ul>
<b>Dairy</b>	<ul style="list-style-type: none"> <li>Conducive environment for milk production</li> <li>High Demand in the domestic market oversupply</li> <li>Milk requirement is 120 million litres against a production level of 70 million litres</li> </ul>	<ul style="list-style-type: none"> <li>Complex logistic when transporting</li> <li>Lack of Competitiveness in Foreign Markets due to high production cost</li> <li>Poor Agriculture Practices</li> <li>No export opportunities</li> <li>Cheap import alternatives</li> </ul>
<b>Pigs</b>	<ul style="list-style-type: none"> <li>Conducive environment</li> <li>High demand in domestic market</li> <li>High demand in foreign markets (Mozambique)</li> <li>High demand from Far East countries</li> <li>High potential of earnings in forex</li> </ul>	<ul style="list-style-type: none"> <li>Complex export processes</li> <li>Religion differences</li> <li>Central Bank regulation of foreign earnings</li> <li>Poor Agriculture practices</li> </ul>
<b>Poultry and eggs</b>	<ul style="list-style-type: none"> <li>Conducive environment</li> <li>High demand in domestic market</li> <li>High demand for processing machinery e.g hatching machine on commercial basis</li> <li>Fertilised egg production for broilers and layers is 93.6 million eggs against a national requirement of 106.2 million eggs.</li> </ul>	<ul style="list-style-type: none"> <li>High cost of proper infrastructure</li> <li>Regulation of exports</li> <li>Outbreak of diseases – bird flu, Newcastle,</li> </ul>
<b>Aqua culture</b>	<ul style="list-style-type: none"> <li>Conducive environment</li> <li>Increasing demand in domestic market</li> <li>Production can be achieved on a small space</li> <li>High Potential for export</li> </ul>	<ul style="list-style-type: none"> <li>Complex logistic when transporting</li> <li>No Tradition in Fish farming in the country</li> </ul>

Source: Authors Own Derivation

From a financial sector perspective, there is scope for advancement of loans, insurance products for each of the categories of investment opportunity with a view of raising production.

### 8.2.5 Opportunities in Horticultural Sector

Over the years especially in the 1990s Zimbabwe was a household name in the production of horticultural produce for the export market (see table 8.5).

**Table 8.5: Production Trends of Horticultural Produce**

CROP	AREA			YIELD			PRODUCTION		
	2020/21	2019/20	%	2020/21	2019/20	%	2020/21	2019/20	%
<b>Tea</b>	7 462	7 582	-2	5.1	5	2	38 056	40 185	-5
<b>Coffee</b>	676	573	18	0.9	1.01	-11	608	579	5
<b>Orange</b>	4 006	3 994	0.3	39	38	3	156 234	151 772	3
<b>Lemon</b>	1 665	1 439	16	40	42	-5	66 600	60 438	10
<b>Banana</b>	7 844	7 539	4.0	38	36	6	298 072	271 404	10
<b>Apples</b>	192	189	1.6	21	23	-9	4 032	4 347	-7
<b>Peaches and Nectarines</b>	324	414	-22	23	22	5	7 452	9 108	-18
<b>Macadamia</b>	9 674	9 525	2	6	6.5	-8	58 044	61 913	-6
<b>Avocado</b>	2 120	2 051	3	44	41	7	93 280	84 091	11
<b>Mango</b>	4 391	4 285	3	27	25	8	118 557	107 125	11
<b>Sugar cane</b>	74 513	74 189	0.4	79	79	0	5 886 527	5 860 931	0.4
<b>Total</b>	<b>112 867</b>	<b>111 780</b>	<b>0.97</b>				<b>6 727 462</b>	<b>6 651 893</b>	<b>1.03</b>

Ministry of Lands, Agriculture, Fisheries, Water and Rural Resettlement (2021)

Although table 8.5 shows improvements in the production of horticultural produce such as coffee, oranges, lemon, bananas, avocados and mangoes, through an aggregator model or value chain financing model, there is significant scope for the financial sector to fund the production of these crops for export. Our interaction with ZIMTrade shows that there are vast export opportunities in the Arab League where international certifications such as the Global Gap are not required.

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## SECTION 9: AGRICULTURE INFRASTRUCTURE

### 9.1 Introduction

There are different forms of infrastructure critical for agriculture production. These infrastructures directly or indirectly affect agriculture production. In order to improve agriculture production, infrastructure is a necessary condition for the farmer. These infrastructures are not little to the following but are necessary; road network, dams and boreholes, irrigation, grain storage, abattoirs and dip-tanks.

**Table 9.1: Forms of Agricultural infrastructure in Provinces**

Infrastructure	Mashonaland East	Mashonaland Central	Mashonaland West	Masvingo	Manicaland	Matabeleland South	Matabeleland North	Midlands
Dams	√	√	√	√	√	√	√	√
Boreholes	√	√	√	√	√	√	√	√
Tobacco Barns	√	√	√		√			
Tobacco Curing facilities	√	√	√		√			
Chicken Run	√	√	√	√	√	√	√	√
Vegetable drier	√	√	√	√	√	√	√	√
Flooding Irrigation	√	√	√	√	√	√	√	√
Centre Pivot	√	√	√	√	√	√	√	√
Sprinkler Irrigation	√	√	√	√	√	√	√	√
Drip Irrigation	√	√	√	√	√	√	√	√

Source: Author's Own Derivation

Table 9.1 shows the type of agricultural infrastructure by Province. There are different forms of infrastructure depending on the nature of the province's crop grown and natural region.

### 9.2 Dip Tank Infrastructure

**Table 9.2: Functional and Non-functional Dip Tanks by Province**

Province	Functional	Dip tanks Requiring Minor Repairs	Non-Functional
Mashonaland West	427	342	9
Mashonaland Central	422	346	9
Mashonaland East	469	272	4
Manicaland	540	219	2
Midlands	538	416	6
Masvingo	658	492	2
Matabeleland North	385	190	11
Matabeleland South	398	212	3
<b>Total</b>	<b>3837</b>	<b>2489</b>	<b>46</b>

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Table 9.2 shows that there are about 3837 dip-tanks in the country. Of these dip tanks about 2489 require minor repairs for them to be fully functional and about 46 are non-functional and they require major repairs. Farmers interviewed revealed that the dipping of animals has improved in 2021 and the government has been putting all efforts into the dipping of animals.

Of those rehabilitated dip tanks, it is critical to acknowledge the work of Development partners in the rehabilitation of **238 dip tanks** across the country. It is also noted that of the functional dip tanks, some of them have perennial water challenges.

**Table 9.3: Dip tanks with perennial water challenges**

Province	Number of dip tanks
Mashonaland West	60
Mashonaland Central	62
Mashonaland East	106
Manicaland	33
Midlands	103
Masvingo	71
Matabeleland North	84
Matabeleland South	139
<b>Total</b>	<b>658</b>

Ministry of Lands, Agriculture, Fisheries, Water and Rural Resettlement (2021)

**Table 9.3 shows that about 658** dip tanks have perennial water challenges in the dry season starting from July onwards in Zimbabwe. Farmers interviewed revealed that, during the dry season, they face dipping challenges and the cattle for months with being dipped. It was noted that it is during this period that pests and diseases spread and sprout during the rainy season. It was suggested that the government drill boreholes for these dip tanks in order to solve the perennial water challenge.

### 9.3 Grain Storage Facilities

It is noted that Zimbabwe has well developed maize infrastructure and remains with 87 Grain Millers Board (GMB) depots with commercial storage capacity of 4,782,500 metric tons (bulk and bags). These depots provide contract farming services, grain fumigation and grain storage. Of these depots some have been converted into agro-processing plants such as Aspindale which provides milling services. GMB depots are classified into four different categories which are Class 1, Class 2, Class 3 and Class 4 as shown in Table 4 below.

**Table 9.4: Classification of GMB Depots**

Depot Class	Number
Class One	15
Class Two	20
Class Three	29
Class Four	23
<b>Total</b>	<b>87</b>

Source: Grain Marketing Board (2021)

Accordingly, Class One depots those which are operational though-out the year, have silos and in others instances a milling plant, for example, Lion's Den, Spindale, Chegutu and Masvingo. Class Two depots are those that are used for grain storage and also open all year round such as Chinhoyi, Gokwe and Marondera. Class Three and Class Four depots fall in the category of collection, transit and mobile depots that normally open during intake.

In order to meet the 2021 season bumper harvest, the study noted that GMB has to come up with collection depots during delivery times in order to reduce post-harvest losses, within a distance of 20km. Farmers interviewed revealed that such development helps reduce distance travelled by farmers taking their produce to the market.

### 9.4 Dam Infrastructure in Zimbabwe

It is noted that the government of Zimbabwe is putting all efforts to improve the number of dams in Zimbabwe, with several large dams being added to the number of dams each and every year, with the main aim of increasing water supply and irrigation. Recently, two major dams were reported being added, namely Tugwi Mukosi and Marovanayi dams. The Zambezi water project for the Gwayi Shangani Dam is on course and is expected to provide water for Bulawayo and boost agriculture in the Matabeleland province. However, despite these efforts to construct many dams, quite a number of dams are under-utilized. The major dams in the country with the potential of improving irrigation are reflected in Table 9.5.

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**Table 9.5: Dams with Potential Irrigation**

Name of Dam	Province	Potential Irrigation Area (Ha)	Natural Region
Zhove	Matabeleland South	500	V
Muzhwi	Masvingo	680	IV
Manyuchi	Masvingo	330	V
Osborne	Manicaland	1700	IV
Mbindangombe	Masvingo	100	V
MTshabezi	Matabeleland South	300	V
Tshatshani	Matabeleland North	230	V
Mwarazi	Manicaland	400	IIB
Mwenje	Mashonaland Central	400	IIA
Mazvikadei	Mashonaland West	1000	IV
Tugwi Mukosi	Masvingo	2000	IV
Marovanyati	Manicaland	1000	IV
<b>Total</b>		<b>9140</b>	

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Zimbabwe has a lot of dams which are lying idle with the potential of turning around agriculture production in the country. Key Informant stakeholders interviewed revealed that the government should develop strategic plans of the use of water in the dams before construction or during construction period such that dams are put into use after construction. It is discouraging to note that after such work has been done, the government has no plan to use the water.

**9.5 Irrigation Infrastructure in Zimbabwe**

Irrigation infrastructure is now critical in order for Zimbabwe to regain its status of the bread basket of Southern Africa. The country is undergoing extensive irrigation rehabilitation and development in both large- and small-scale sectors as a result of climatic constraints, including periodic mid-season drought and recurrent seasonal droughts, which make dryland cultivation a risky venture and the need to be self-sufficient in food production.

**Table 9.6: Type of Irrigation use in Zimbabwe**

Irrigation Infrastructure	2018	2019	2020	2021
Flooding/Canal	25%	22%	23%	24%
Centre Pivot	26%	28%	24%	25%
Sprinklers	33%	34%	35%	35%
Drip	13%	13.5%	10%	12%
Other (siphoned pipes)	3%	2.5%	8%	4%

Source: Author's Own Derivation

Table 6 shows that sprinkler irrigation dominates, followed by centre pivots, then flooding/canal, drip and others. These other forms of irrigation includes the **informal/traditional irrigation** is practised in an estimated 20000ha of wetlands/inland valley bottoms (dambos) and small gardens by many rural families. Vegetables are produced during the wet and dry seasons. Usually, irrigation is done with buckets/cans from hand dug shallow wells.

**9.6 Smallholder Irrigation Schemes in Zimbabwe**

There are more than 350 smallholder irrigation schemes in Zimbabwe. Smallholder irrigation allows farmers to intensify crop production throughout the year. They are a mitigation measure, especially against droughts and the mid-season dry spells where crops severely suffer from moisture stress. They are playing a pivotal role in the reduction of food insecurity, malnutrition and poverty, as well as contributing towards economic empowerment of the local people.

**9.6.1 Types of Irrigation Schemes for Smallholder Irrigation Schemes**

**Table 9.7: Types of Irrigation Systems in Smallholder Irrigation Schemes**

Type	Percentage
Surface (flood irrigation)	80%
Sprinkler and Pivot	20%

Source: Author's Own Derivation

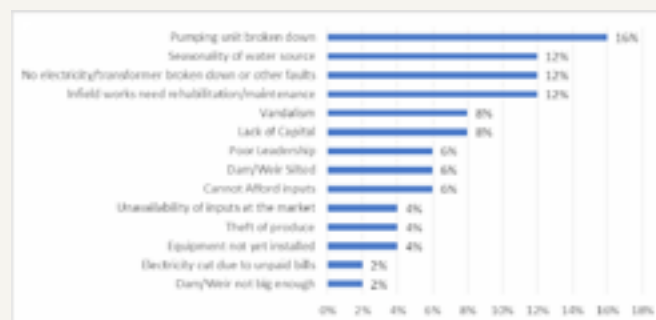
Table shows that up to 80% of more than 10000ha smallholder irrigation area is under surface irrigation, water being drawn from rivers, storage

reservoirs, weirs or deep boreholes is supplied through constructed canals. There is now a significant increase in Centre Pivots and sprinkler irrigation in these smallholder schemes through government and development partners funding. Surveyed respondents revealed that some of the schemes that were none-functional have now been rehabilitated, some from the devolution funds, some from donor assistance and some from private companies.

**9.6.2 Functionality of irrigation Schemes**

There are some challenges in a number of these schemes causing some to be partially functional while others to be non-functional. The major challenges are as shown in Figure 9.1.

**Figure 9.1: Reasons for Partial and non-functionality of Irrigation Schemes**



Source: Author's Own Derivation Based on Respondents Views

Of the schemes that were surveyed, a large proportion had broken down pumping units. Some of the major reasons for non-functionality include outstanding field maintenance, electrical faults/breakdown of transformers', seasonality of water source due to droughts, vandalism and poor leadership.

**9.6.3 Major Crops Grown in Irrigation Schemes**

Most of the schemes provide stable livelihoods to beneficiaries of the schemes through growing different types of crops. They also provide stable employment with some creating decent jobs to beneficiaries especially the women and youth as they are the ones involved in day to day activities of the schemes. They achieve that through growing different crops as demonstrated in figure below.

**Figure 9.2: Crops Grown in Irrigation Schemes**



Source: Author's Own Derivation Based on Respondents Views

In terms of Figure 9.2, maize dominates as the most crop grown, followed by sugar beans and vegetables. The dominants of these crops are associated with size of the land as they range between 0.5hactare to 1.5 hectares per beneficiary.

Surveyed respondents revealed that the schemes are their major source of income with some earning above US\$3 000 per annum. Such incomes constitute categorisation of irrigation schemes as decent jobs agriculture schemes. According to the World Bank (2016) decent jobs are opportunities for work that are productive, respect core labour standards, provide fair income (whether through self-employment or wage labour) and ensure equal treatment for all. farmers earning at least US\$57.00 per month were regarded as having decent jobs which translates to US\$1.90 per day (World Bank). Smallholder irrigation schemes are a potential way of driving the rural populace towards achieving Vision 2030 of upper middle-income country with a per capita income of US\$3500 if properly supported.





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#### 9.6.4 Small Scale Irrigation and food Security

From the major crops being grown and effective land utilisation on agriculture activities being done in the schemes, they are a steady way of achieving food security. The government of Zimbabwe's main objective for smallholder irrigation development is to guarantee food security through increased crop production, guaranteed decent jobs in the agriculture sector and a guaranteed source of income. In addition, the ZimVAC Report (2021) noted that irrigation, if rehabilitated and made fully functional, is a major player in achieving the resilience of rural areas.

#### 9.6.5 Benefits of Smallholder Irrigation Schemes

**Table 9.8: Benefits of Smallholder Irrigation Schemes to Farmers**

Benefit	Yes	No
Grow crops throughout the year	90%	10%
Enables food stability at household level	92%	8%
Increased food security to the rest of community	80%	20%
Eases farmers from labour as they can make others work for food	60%	40%
Enables production of surpluses which can be sold	80%	20%
Improves standard of living for households	95%	5%
Develops Cash economy in the rural areas	90%	10%
Enables people to send their children to schools	90%	10%

Source: Author's Own Derivation Based on Respondents Views

It can be noted that small-holder irrigation farmers are able to grow their crops all year round and the farmers would irrigate their crops during seasons of erratic rains. The growing of crops throughout the year addresses the dimension of 'stability of food supply', thereby ensuring that the farmers are food secure because they would access food on a continuous basis. It also reveals that smallholder irrigation farming increased household food security in areas with poor rainfall, not only for the farmers but also for the rest of the community. These irrigation schemes enabled farmers to produce surpluses such that even the poor had access to the food because of its abundance in the community as they can come and work for food in the plots. Surveyed farmers revealed that irrigation schemes have improved their standard of living through the selling of agricultural produce. As such, small-scale irrigation schemes can be interpreted to play an important role in the development of a cash economy for many rural communities, with income becoming accessible to many individuals.

#### 9.7 Road Infrastructure in Zimbabwe

Zimbabwe is making strides to improve the road network in the country. Notable achievements have been seen in the major highways reconstructions and resurfacing. However, of major concern to farmers are tertiary roads which are about 70% of the total road network. These are feeder and access roads that link rural and farm areas to the secondary road network. These are managed by the District Development Fund (DDF) and by the District Councils (DC). The tertiary access roads, together with the unclassified tracks, typically with traffic volumes below 50 vehicles per day, provide for the intra-rural access movements. These are critical as they link rural and farming communities to social economic amenities, such as schools, health centres, and markets, and enable government services to reach rural areas.

**Table 9.9: Nature of Roads in Farming Areas**

Factor of Road Network	Yes	No
Roads to the main road needs rehabilitation	90%	10%
Farm roads needs rehabilitation	97%	3%
Roads to the next farm(s) are in need of rehabilitation	94%	6%
Nature of Roads affects supply of commodities to markets	90%	10%
Poor road network reduces customers to reach the farmers	80%	20%
Poor road network increases cost of transporting commodities	90%	10%

Source: Author's Own Derivation Based on Respondents Views

Table 9.9 revealed the greater%age of farm roads need rehabilitation as they have been destroyed by rains. Such feed roads are critical as they are

the way farmers can access inputs and take their produce to the markets. Farmers' survey revealed that they are caused to pay high transport cost as it is the state of these roads which cause the transport costs charge to be higher as transporters fear for their vehicles and isolate some of the farmers from customers who want to buy the farms produce at farm premises.

#### 9.8 Summary

There are different forms of infrastructure available in provinces which support agriculture or are used for agriculture production. The country has a lot of potential to boost agriculture production if some of the infrastructure such dams have proper plans and are utilised for irrigation purposes. The country has more than 350 small scale irrigation schemes some of which are partially functional and some non-functional due to different reasons. Smallholder irrigation schemes have been seen as a way of creating decent jobs to the rural areas. However, most of smallholder irrigation schemes are in need of rehabilitation. It is important for the committees to partner with international organizations, governments and farmers themselves to pool resources together to rehabilitate the infrastructure. These irrigation schemes are a way of increasing crop production and output.

The dip tanks are in urgent need of rehabilitation even though some have been rehabilitated by development partners and are a major in-demand infrastructure if the country is to sustain its herd rebuilding. It can also be revealed that farmers suffered huge losses of cattle due to poverty and water shortages and January diseases. It is therefore recommended that grass harvesting should be practised in provinces of abundance and supplied to those in need to reduce poverty deaths. Farmers should also practice self-dipping of cattle to reduce the effects of January disease.

## SECTION 10: EASE OF DOING BUSINESS IN AGRICULTURE

### 10.1 Introduction

The current study has been conducted under COVID 19 conditions. Zimbabwe like any other countries have been affected by Covid 19. Covid 19 has resulted in the new normal of doing business in Zimbabwe. The pandemic has affected the way farmers do their business at Macro level though with minimal effects at micro level. In a bid to control the effects of the pandemic, the government introduced some restrictions in terms of hours of business, movement of people across towns and cities and operating hours. Most of the inputs are found in main towns and cities (for inputs and drugs), this meant a challenge to farmers as they could not get the inputs on time. Access to markets was also negatively affected and a number of farmers suffered some losses especially in terms of perishables.

The pandemic has affected the Ease of Doing Business in the Zimbabwean agriculture sector. This affected the competitiveness of Zimbabwean agriculture across all agriculture sub sectors and actors along the agriculture value chains.

### 10.2 Measurement of Ease of Doing Business

Just like any framework of assessing the business environment, the Ease of Doing Business means assessing the regulatory environment in terms of its conduciveness to the starting and operation of a local firm or enterprise. Globally, the Ease of Doing Business in Agriculture is assessed using the Enabling the Business of Agriculture (EBA) which looks at how the laws and regulations in agriculture affect farmers' business. It presents indicators that measure the laws, regulations and bureaucratic processes that affect farmers. It also identifies actionable reforms to remove obstacles for farmers seeking to grow their business. EBA indicators assess whether governments make it easier or harder for farmers to operate their businesses. The indicators provide a tangible measure of progress and identify regulatory obstacles to market integration and entrepreneurship in agriculture.



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**Table 10. 1. Indicators Scores of EBA for Zimbabwe**

Indicator	Score
EBA Topic Score	48.36
Supplying Seed	60.92
Registering Fertiliser	5.56
Securing Water	70.00
Registering Machinery	44.32
Sustaining Livestock	46.67
Protecting Plant Health	20.00
Trading Food	59.44
Accessing Finance	80.00

Source: World Bank, (2019)

The indicator scoring ranges from 0-100, with figures close to zero showing that the country is doing well and close to 100 indicating the worst. Generally, Zimbabwe is doing well in terms of registering fertilizers (Quality of fertilizer regulation index being one of the best (0-6) ranking 1) and plant protection (Quality of phytosanitary regulation index (0-5) ranking 1). The country needs to improve on Access to finance for farmers (more preferably on inclusive financing), securing water by farmers, supplying seed and trading food (especially, time and cost to obtain agriculture-specific export documents).

### 10.3 Factors Affecting Farmers Ease of Doing Business in Zimbabwe

**Table 10. 2: Factors Affecting Farmers Ease of Doing Business**

Factor	Yes (%)	No (%)
Covid 19 Pandemic Restrictions	90%	10%
Cost and Availability of Labour	73%	27%
Zimbabwe National Water Authority (ZINWA) cost of Water	65%	35%
Electricity Supply availability and cost	62%	38%
Availability of Finance and its cost	84%	16%
Payment delays	92%	8%
Nature of Markets	74%	26%
Dipping of animals	67%	33%
government Producer Price	78%	22%
Taxes, levies and fees	74%	26%
Cost of Clearing animals	68%	32%
Policies, legislations and regulations	50%	50%
Documentation requirements	45%	55%
Transport cost of Produce	72%	28%
Vandalism and theft	65%	35%

Source: Author's Own Derivation Based on Respondents Views

Interviewed farmers revealed that there are several factors that affect their ease of doing business. These include among others, Covid 19 restrictions, ZINWA cost of water, electricity supply interruptions, vandalism, dipping of animals, cost of clearing animals, theft, availability of finance and cost, transport cost and availability and compliance requirements and cost were major factors affecting their farming business.

#### Covid 19 Restrictions

Interviewed farmers and stakeholders revealed that they were negatively affected by the Covid 19 restrictions imposed by the government starting 2020. Those restrictions limited their movement to access inputs in time, to access drugs and vaccines, chemicals etc. In addition, some of the farmers highlighted being restricted to take their produce to markets. Some of the markets were closed for specified periods of time, and farmers' were left with nowhere to take agriculture produce to. This resulted in farmers experiencing losses.

#### Payment Delays

Farmers interviewed revealed that they acquire next season's inputs from the current season sales. If they are not paid in time, it means they will not acquire the inputs in time. Cotton farmers were the waste affected as they were paid a season after delivering their crop. Farmers advocated for a real time payment system that is as soon as they deliver their produce, they should be paid on time. Due to such delays, some farmers advocated to grow crops which they can sell directly other than going through the formal markets.

#### Producer Price

Farmers interviewed revealed that the concept of producer price being used in marketing some of the crops, is not inclusive enough. The price given does not sometimes cover the cost of production. Farmers highlighted that the government should do proper consultations before announcing a price for a crop and look in terms of how the farmers are getting the inputs.

#### Zimbabwe National Water Authority (ZINWA)

The main concern raised with regards to ZINWA was that the authority is only concerned about collecting money from farmers without providing the required services such as servicing and maintenance of water bodies such as dams, rivers and boreholes. In that regard, farmers end up making payments to ZINWA just because they have identified a water source and not for a service provided. In addition to that, farmers feel that the ZINWA bills are unfair as they just do the billing without even testing the capacity of the water bodies to establish consumption levels. More so, some dams and boreholes are dry but farmers are made to pay for water which they would not have consumed. Some farmers also queried the ZINWA management system where an unidentified person carrying a mere receipt book just approaches a farm and claims to be a ZINWA official who is collecting payments. This system was claimed to expose farmers to conmen, hence, a better way of managing the collection of payments from farmers should be prioritised.

#### Dipping animals

Generally, the findings revealed that most community dip tanks are non-functional owing to non-availability of water, chemicals and dilapidated infrastructure. In that case, most farmers are self-dipping their livestock at household level using the spraying method. There are however a few cases mostly in the communal areas where NGOs such as Food Aid Organisation (FAO) assists with dipping chemicals. In some instances, volunteers collect dipping chemicals from district veterinary offices and farmers only contribute minimal amounts towards transport expenses, otherwise, dipping animals at community dip tanks is free.

#### Cost of clearing animals

The findings revealed that veterinary clearance for moving livestock from one place to another was free. However, farmers pay a nominal fee for the permit. With regards to the cost of transporting livestock to the market, farmers generally stated that hired transport was very expensive and charges differed depending on distance, the type of vehicle and number of livestock being transported, among other factors.

#### Cost of transporting farm produce

The findings revealed that the main form of transport used by farmers is hired vehicles, with a few exceptional cases where farmers use scotch carts to village or district markets and where farmers walk to supply products within their local communities. Generally, the charges were said to be very expensive especially considering that the transport service providers charge in foreign currency whereas farmers are paid in local currency on instances where products are delivered to GMB, Cottco and Tobacco Auction Floors. This scenario was alleged to leave farmers sometimes in dire straits, with costs exceeding earnings if they had to source foreign currency at the unofficial black-market rate. More specifically, it was revealed that vegetables are charged per head or per bundle, grains are charged per bag whereas tobacco and cotton are charged per number of bales. The coming up with satellite market sites in local communities for the above-mentioned organisations would be most welcome to farmers in saving costs and increasing their earnings.

#### Other costs incurred during the season

Labour costs were cited by all categories of farmers as the leading additional costs incurred during the season. Though in a few instances farmers exchange labour with goods produced, in the majority of cases, labour costs reduce the farmers' annual earnings with a very high margin especially on occasions where farmers are self-funded and when crop production is affected by various forces such as climate change. This was followed by energy charges for farmers using electricity for irrigation and tobacco curing. The Zimbabwe Electricity Transmission and Distribution Company (ZETDC) charges were said to be very high especially where the prepaid meter system was used. A special power subsidy for farmers was said to be a welcome idea. Pest control and preservative chemical costs were also cited.

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### 10.5 Summary

Farmers were negatively affected by Covid 19 restrictions in terms of accessing the inputs on time and delivering their produce to the markets especially for the fresh produce. The ease of doing agriculture business is also affected by high cost and non-availability of labour (labour intensive production- tobacco and cotton) due to currency of payment problem, delays in payments, high cost of production due to high compliance cost, high transport cost, high electricity cost, government producer price announcement, nature of markets, vandalism and theft of equipment and competition from cheap imports are some of the factors affecting the sector.

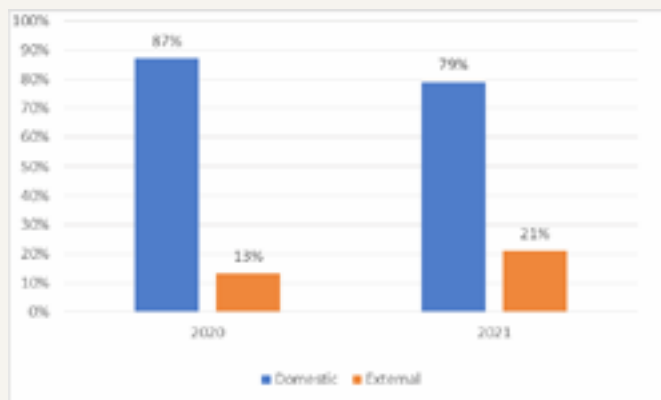
## SECTION 11: AGRICULTURE SECTOR PRODUCE MARKETS IN ZIMBABWE

### 11.1 Introduction

Produce markets remain critical in enhancing agriculture productivity. The markets remain formal and informal and local and international depending on the crops being produced by the farmers and the contracts they have to export. Markets are part of the value chain which facilitate supply of agriculture products to the final consumers.

### 11.2 Nature of Markets Available

Figure 11.1: Nature of Market for Agriculture Produce



Source: Author's Own Derivation Based on Respondents Views

Figure 11.1 shows that the greater part of the agriculture produce markets (79%) is domestic while a significant 21% is going to external markets (exported). Figure 1 shows growing in international markets by 8% from 13% in 2020 to 21% in 2021. Farmers are now growing for the export markets, some exporting informally to neighbouring countries such as Mozambique, Zambia and South Africa. Farmers interviewed also cited growing demand for some of the produce markets in countries such as Netherlands (blue and black berries), European Union (strawberries and blueberries), granadilla (Asia Countries), macadamia nuts (East Asian countries).

### 11.3 Nature of Domestic Markets

With regards to the availability of markets for farm produce, farmers cited the Grain Marketing Board (GMB) as the principal market for grains such as maize, sorghum, and millet. However, the majority of the farmers expressed concern over the delayed disbursement of payments for grain delivered, especially in the current economic situation, which is characterised by high inflation levels and currency instability. In this way, the consideration of time value for money should be overemphasized so as to ensure that farmers get the best value for their products.

The same was said with regards to tobacco where tobacco auction floors are ready to buy the product but the bone of contention was on the issue of pricing, which was said to be unfair on the part of the farmers. Furthermore, farmers were not happy with the emergence of illegal middlemen (*makoronyera*) at the auction floors as they were alleged to be working in cahoots with auction floor staff to downgrade farmers' tobacco to their own advantage.

In terms of perishable farm produce, farmers pointed out that there was a scarcity of markets especially during times when supply exceeds demand levels. In light of that, farmers end up selling their produce such as cabbages and tomatoes at very low prices during times when the markets like Mbare Musika and other district markets are flooded with perishable farm produce. To add on to that, middlemen (*makoronyera*) also take advantage of the situation and end up benefiting more at the expense of the farmers. Worse still, some even end up feeding vegetables such as cabbages to their livestock. Having said that, some farmers are incapacitated even to the extent of failing to buy inputs for the next season, negatively affecting crop production. It is against this background that the need to extend the value chain for perishable products should be prioritised.

Figure 11.2: Actual Domestic Markets Available



Source: Author's Own Derivation Based on Respondents Views

It can be deduced from Fig2 that contract farming is growing in Zimbabwe and contractors are creating markets for the contracted crops. Interviewed farmers acknowledged that their contractors will collect the produce directly from them or they will be requested to supply the produce directly to contractors. These contractors include those in tobacco Ethical Leaf Tobacco (ELT), Boost Africa, Sub-Saharan Africa, Zimbabwe Leaf Tobacco etc, broiler production (Irvines), maize seed production (Seedco), sorghum (Delta Beverages), Paper Hole investment (PHI) for grains. These results reflect the influence and functionality of value chains in certain crops in Zimbabwe.

In terms of the availability of markets for livestock, the findings revealed that there are very few abattoirs dotted around the province, though some are non-functional. A few farmers indicated that beef cattle were the main livestock species which they sold to abattoirs. Nonetheless, the main concern was the inability for farmers to determine the prices for their produce while abattoir owners determine the prices and beef grade on their behalf and where in most cases, the prices benefit the buyer more than the producer. The majority of farmers indicated that the buyers actually come to buy cattle from their homesteads because they cannot afford the costs of transporting their cattle to the abattoirs. In spite of that, the farmers still cry foul over the very low prices imposed by the cattle buyers, which leave them with no choice but to let go of their cattle at disappointing prices. More so, the 3-tier pricing system used by the abattoirs or cattle buyers benefitted the buyer at the expense of the producer because the unofficial black market exchange rates used are very unfair.

The findings also revealed that the other livestock species such as goats, pigs and sheep were mainly sold in local communities owing to the high transport costs for moving the animals from Point A to Point B. Regardless of the free veterinary clearance services and very low permit charges, the farmers still find it more beneficial to supply their local markets as compared to going to district or provincial markets. As for chickens, the main species reared by farmers was the free range or road runner chickens, which were mainly for domestic consumption and a few cases where some households have excess to sell at village markets. For the few farmers who are into broiler or Boschveld chicken production, the incapacity to compete with well-established poultry companies hindered their efforts to participate at a commercial level, hence, their targeted markets were the local communities they lived in.

With regards to the export market, all the respondents indicated that they were not yet participating on the export market but given the opportunities, the farmers would want direct penetration of the regional or international markets so as to gain maximum value from their produce. In light of that, building the capacity of farmers to be able to export their produce should be at the centre stage.

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11.4 Markets for Livestock

Figure 3: Markets for Livestock in Zimbabwe



Source: Author's Own Derivation Based on Respondents Views

In terms of livestock, most cattle were sold through the open market and middlemen which accounted for 60% and 21% respectively. Regulated sales were low due to restricted gatherings and movements. Most communal cattle sales were done in Masvingo and Matabeleland provinces.

11.5 Role Played by the Markets to Farmers

Markets played a critical role to farmers through provision of different services. Farmers interviewed revealed that markets provide the following services to them.

Table 11. 1: Role Played by the Markets to Farmers

Role	Yes (%)	No (%)
Main sources of household income	73%	27%
Main source of inputs for agriculture activities	65%	35%
Prices of commodities to sell your produce at	80%	20%
Source of information about crops to grow and in which season	49%	51%
Place to sell your produce	84%	16%
Meeting those who buy your produce	85%	15%
Timely payment for farmers	70%	30%
Financing of farming activities	50%	50%

Source: Researchers' Own Observations

The table reveal that markets provide a linkage role between farmers and consumers, they are the main source of income for some farmers, they are the source of inputs (contractors), they provide prices for the commodities produced by farmers, they provides places to sell crops produced, they provide timely payment to farmers and some markets finance farming activities.

However, farmers were not happy with the payment and delays in payment especially cotton farmers who were paid after a year. They have lost value for their effort. Farmers were also not happy with some forms of payment being used, that is payment using groceries of which they would have incurred cost of monetary value but receiving payment in goods will not compensate them. Some of the crops such as cotton and tobacco are labour intensive and sometimes they require cash payments for the services and being paid

in goods for such services negatively affect them. Farmers of certain crops (tobacco) were happy with the payment of their produce in partly foreign currency as they said this maintains their value and would make them able to go back to the fields again.

11.6 The main challenges to farmers in marketing products

There are several challenges cited by farmers in terms of marketing their crops or animals:

**Transport cost and availability of transport to the markets** – farmers are in some remote areas of which some transports are not willing to ferry the farmers produce to the market from those remote areas. The situation is worsened by the poor road infrastructure or network, which makes the transporters shunning those areas. Those willing to transport, will be charging high fares, which result in farmers getting little to no returns from their initiatives. Livestock farmers are experiencing high costs of transporting animals to the market. From the surveyed respondents, farmers cited being charged US\$10 per bale of tobacco to the auction and US\$25 for transporting a beast to the abattoir.

**Pricing problem** – the pricing of certain crops which is controlled by the government, especially food crops under the producer price system (PPS), has resulted in losses to farmers. They will be required to sell at the stipulated prices and after selling they will get their money transferred to their accounts in local currency but expenses would have been paid in foreign currency. Some of the crops are under-priced, hence farmers will not be able to cover the cost. Some of the markets take farmers produce at wholesale prices which are lower than anticipated for example fresh produce markets, sometimes results in farmers just dumping their produce.

**The currency problem** - pricing of crops such as tobacco, maize, Soybeans and cotton discourage farmers as some of the prices are below the cost incurred by farmers. The conversion rate is discouraging as the government uses bank rates in coming up with costs, but farmers get the inputs from the markets which use black market rates. This brings a wide disparity in prices. To reduce these effects, farmers suggested price indexed in foreign currency even though farmers will be paid using local currency. By doing so, this helps minimise losses for farmers.

**Delays in Payments** – Interviewed farmers were not happy with time taken to receive payments after delivering their crops. The worst affected farmers were those cotton farmers who were paid a season after delivering their crops. This prompted most cotton farmers to do side marketing as a way of generating revenues for themselves. Side marketing is another challenge in contracted farmers.

11.7 Summary

For markets to continue playing the critical role in the produce markets, it is critical that the government continues fostering policies that facilitate conducive markets for our agricultural products. Where farmers are not happy with the operation or prices in the markets, the government or authorities should come in and resolve the challenges such that farmers continue producing and supplying the markets. For the government controlled markets such as GMB and Cottco, the markets should facilitate timeously payment of farmers such that their value will be maintained.

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