Agriculture market prices

Taming dry spells through cloud seeding

Heri’s meteoric rise in horticulture

Agribusiness Banking

The financial support you need to grow your agriculture based business.

Contact us today to get a credit facility for capital expenditure or working capital requirements.
From air to sea, DP World comes in handy

cargo. Maputo is the long-term game for penetration into Middle East (ME) and Far East (FE) market especially with the coming to fruition of the Zimbabwe and China citrus agreement. Maputo has citrus handling facilities and it takes a short time compared to Durban.

On the need for the development of the Rutenga dry port, the chairman of Citrus Growers Association of Zimbabwe (CGAZ), Mr John Perrott observed that there would be new planting of citrus to take advantage of this market, thanks to the Zim/China protocol.

In line with the Government’s Vision 2030 objective of a prosperous and empowered Upper Middle-Income Society, being operationalised through National Development Strategy 1 (NDS1) and Horticulture Recovery and Growth Plan (HRGP), improvement of security of land tenure systems for horticulture producers was also cited as an incentive to enhance the country’s foreign currency earnings.

It is also prudent for Government to adopt policies that guarantee security of investments considering that citrus farming is a long-term crop (25 years and longer), project that ensures that farms where citrus is established are protected.

Citrus plantations can generate foreign currency for more than 100 years, for example, Mazoe Citrus Estate, which has been productively exporting for over 100 years as well as supplying the population with very healthy fruit. With Tokwe Mukosi, where water and land are available, Zimbabwe can be one of the biggest citrus producers again. In 5 – 10 years citrus volumes in Maputo are likely to escalate. As a short-term solution, citrus exporters may make use of DP World who have capabilities in the region with stakes in shipping lines as well as refrigerated containers.

The port of Maputo is best in the medium term as there is spare capacity between Zimbabwe and Mozambique (currently 500,000 tonnes per year, yet it has a capacity of 2 million metric tonnes per year).

Zimbabwe will also need to capitalise on the citrus phytosanitary protocol it signed with China in January to enable it to export citrus fruit to its Asian partner and reduce over reliance on the European market. The protocol requires establishment of a cold chain system in place from port for the management of Cold Cooling Moth and other pests, bringing to finality engagements that started in 2015 at the behest of Shashi citrus smallholder farmers.

The deal will give Zimbabwe access to a market worth US$500 million annually and open new avenues for local farmers who have previously largely depended on the European market. The fruits to be exported include oranges, mandarins, lemons, limes, tangelos and grapefruits.

Sea freight is considered a much greener transportation mode and has a higher carrying capacity with increasing global pea exports being transported by sea. It is estimated that more exports of horticultural produce such as sugar snaps, mango, peaches and other stone fruits into Europe will be transported using sea freight.

RISING air freight rates have in recent times made air shipment of agricultural produce relatively expensive. This, coupled with the shrinking numbers of operational airfreight carriers and inbound cargo in the wake of disrupted flights, thanks to the geo-political developments in eastern Europe, have made it prudent for Zimbabwe to migrate to sea transport to export perishable horticultural products.

Horticulture produce from Zimbabwe is drifting towards maritime to ports in South Africa and other ports in the region rather than by air on sustainability, profitability, environmental awareness and cost considerations as sea freight or shipping via container ships is by far the cheapest way to move goods internationally though it is the slowest.

This has made it necessary for Zimbabwean farmers to adapt to changes in the market, where concerns about the carbon footprint of fresh produce that is flown to destinations in Europe is seeing a shift to sea freight.

The decision by a delegation from DP World, one of the largest marine terminal operators in the world, to come to Zimbabwe and set up logistics projects and dry ports recently is good news for horticultural partners and cemented President Mnangagwa’s ‘Zimbabwe is Open for Business’ mantra.

The visit was meant to wind up feasibility studies and come up with solid locations to set up logistics entities and dry ports in Zimbabwe. It also sought to reiterate the memorandum of understanding signed between Zimbabwe and UAE in October 2021.

DP World, which holds a 30-year concession (till 2033 with room for 10-year expansion) to operate the container terminal at Maputo Port, launched a rail service between the port and Harare in 2021 reducing the transit time for containers travelling between Mozambique and Zimbabwe.

DP World indicated their willingness and preparedness to set up dry ports in every area where National Railways of Zimbabwe (NRZ) has expansive land. NRZ last year indicated that they had a lot of land in Chirumahini, Mutare, Harare, Beitbridge, Gweru and Lien’s Den and given the centrality of the country within the South Africa Development Community (SADC), this made Zimbabwe a very good hub for dry port facilities.

NRZ has 20 hectares of land in Rutenga and at its peak in the 1990s, the rail entity moved 14, 4 million tonnes against an installed capacity of 18 million tonnes annually. At least 2, 6 million tonnes were targeted for 2021 with 3 million targeted for 2022.

The development of the Rutenga Dry Port will link landlocked Zambian with Zambia, Botswana, Malawi, Namibia, Democratic Republic of Congo and South Africa confirming its regional hub and international trade gateway status as it connects with the Port of Maputo, South African ports of Richards Bay and Durban and Port of Walvis Bay in Namibia.

According to logistics experts, the Rutenga Dry Port special economic zone will reduce the cost of logistics, service the region through end-to-end logistics solutions including long haul transportation, efficient operations, innovative automation, bonded and non-bonded warehouses and connect logistics and customers.

Zimbabwe relies heavily on the Durban port for its imports and exports to the Far East and other world markets. South Africa is both a source market and corridor through which imports from other countries are transported to Zimbabwe. South Africa on the one hand, is an important destination market as well as a transit point through which some goods are exported to other countries.

The Port of Durban is the largest port terminal in sub-Saharan Africa with 60 percent of Southern Africa’s containerised trade passing through the harbour.

According to the World Bank, demand for air freight is limited by cost, typically priced four to five times that of road transport and 12–16 times that of sea transport. The advent of Covid-19 has resulted in disruptions in the movement of cargo and caused a spike in freight rates. Commodities shipped by air thus have to be of high value per unit or are very time-sensitive, such as perishable agricultural and seafood products.

Demand for air freight exports has been limited from landlocked developing countries because most enterprises ship small volumes of low-value goods, however, without a significant outbound flow, the inbound air freight rates tend to be higher — reducing the types and quantities of goods transported by air.

The World Bank noted that the main difficulty for landlocked developing countries is to generate enough traffic to attract air freight services that are both frequent and competitively priced.

The Second Republic wants to expedite opening of a dry port at Rutenga (located at the centre of a road and rail network linking Zimbabwe and South Africa together with Mozambique) to de-congest Beitbridge Border Post and quicken human and land cargo movement.

Horticulture due to its peculiarity, seasonality and perishability needs sound logistics for moving product effectively and timeously. To move away from depending on the port of Durban, Zimbabwe is exploring Maputo, Beira and Walvis Bay as possible options.

The evolution of digitalisation of logistics (Block Chain Logistics) has resulted in the successful export movement of product from farm to pack house to road/air/sea freight to final destination.

Intermodal Terminal (Rutenga) is one of the areas for consolidation of cargo. Maputo is the long-term game for penetration into Middle East (ME) and Far East (FE) market especially with the coming to fruition of the Zimbabwe and China citrus agreement. Maputo has citrus handling facilities and it takes a short time compared to Durban.

On the need for the development of the Rutenga dry port, the chairman of Citrus Growers Association of Zimbabwe (CGAZ), Mr John Perrott observed that there would be new planting of citrus to take advantage of this market, thanks to the Zim/China protocol.

In line with the Government’s Vision 2030 objective of a prosperous and empowered Upper Middle-Income Society, being operationalised through National Development Strategy 1 (NDS1) and Horticulture Recovery and Growth Plan (HRGP), improvement of security of land tenure systems for horticulture producers was also cited as an incentive to enhance the country’s foreign currency earnings.

It is also prudent for Government to adopt policies that guarantee security of investments considering that citrus farming is a long-term crop (25 years and longer), project that ensures that farms where citrus is established are protected.

Citrus plantations can generate foreign currency for more than 100 years, for example, Mazoe Citrus Estate, which has been productively exporting for over 100 years as well as supplying the population with very healthy fruit. With Tokwe Mukosi, where water and land are available, Zimbabwe can be one of the biggest citrus producers again. In 5 – 10 years citrus volumes in Maputo are likely to escalate. As a short-term solution, citrus exporters may make use of DP World who have capabilities in the region with stakes in shipping lines as well as refrigerated containers.

The port of Maputo is best in the medium term as there is spare capacity between Zimbabwe and Mozambique (currently 500,000 tonnes per year, yet it has a capacity of 2 million metric tonnes per year).

Zimbabwe will also need to capitalise on the citrus phytosanitary protocol it signed with China in January to enable it to export citrus fruit to its Asian partner and reduce over reliance on the European market. The protocol requires establishment of a cold chain system in place from port for the management of Cold Cooling Moth and other pests, bringing to finality engagements that started in 2015 at the behest of Shashi citrus smallholder farmers.

The deal will give Zimbabwe access to a market worth US$500 million annually and open new avenues for local farmers who have previously largely depended on the European market. The fruits to be exported include oranges, mandarins, lemons, limes, tangelos and grapefruits.

Sea freight is considered a much greener transportation mode and has a higher carrying capacity with increasing global pea exports being transported by sea. It is estimated that more exports of horticultural produce such as sugar snaps, mango, peaches and other stone fruits into Europe will be transported using sea freight.
National Cattle Herd Improvement

Nutrition interventions
- Presidential Fodder Bank Programme
- Hay Baling Programme
- On farm Feed Formulation Programme

Animal Genetic Improvement
- Mazowe Bull Centre and Semen Production
- National Artificial Insemination Programme
- Distribution of Bulls and Heifers

Bounce Back Better

Animal Health Interventions
- Blitz Tick Grease Programme
- Intensive Cattle Dipping (5-5-4 regime) Programme
- Local Vaccine Production Programme
- Foot and Mouth Disease Control Programme
- Tsetse Control

For more information visit your nearest Agritex and Vet offices

Agricultural and Rural Development Advisory Services
Directorate of Veterinary Services
Choosing the right tobacco variety for your area

The 2022/23 tobacco growing season commenced on the 1st of June. With it comes decisions on which variety (in this article also refers to plural form) to grow.

When defined, a variety – is a strategic resource requiring extensive deployment for maximum benefit. The strategic part referring to its agronomic attributes or traits, the extensive deployment being the good agricultural practices needed and the maximum benefit being the attainment of desired yields and quality.

To ensure growers have access to superior genetics, the Tobacco Research Board (TRB) openly released seven varieties (K RK70, K RK71, K RK72, K RK73, K RK74, K RK75 and K RK76) in the last four years.

These varieties are capable of high yields (from 4-5 t/ha) and can attain excellent leaf qualities under the right environmental conditions and good agronomical practices (Fig.1).

In total the TRB has released over 35 hybrid flue-cured tobacco varieties which are at the farmers disposable.

However, there are two important caveats on variety performance that growers need to be cognizant of, viz, a good variety is not a substitute for poor management and also a variety might be affected by extreme weather conditions even when the management has been good.

Thus, it is counterproductive to change a variety because of poor management or bad season.

Fig.1: A well-managed tobacco crop (left photo) and the resultant cured leaf quality (right photo)

Thus, a discussion of the important considerations when choosing varieties is pertinent, as growers prepare for the ongoing season. In choosing the right variety for your area and also to meet your expectations; the following fundamental questions have to be answered methodically. Where are you farming (that is – slow, medium or fast-growing area) / What is growth/ripening rate of the variety you are considering?

Are you planning an irrigated crop? Do you have any particular diseases that affected your crop in previous years?

Are your soils heavy? What is your yield target? What styles of tobacco are you aiming at?

A comprehensive analysis of these fundamental questions guides the rational selection of the most ideal variety for your farming area and your expectations.

To understand the classification of your farming area (picture below), which zones districts by their distinct growth characteristics into fast, medium and slow growing areas is provided and key information on the climatic characteristics of these growing areas and recommended varieties is tabulated.

---

**Minister’s Foreword**

The Zimpapers Agriculture Journal will complement available publications and literature on the Zimbabwe’s agriculture sector and track progress on the development trajectory since the advent of the Second Republic.

It is now an established fact that agriculture development will lead to rural industrialisation. Rural industrialisation will lead to rural development and transformation of communities.

The journal essentially serves all constituencies in the agriculture sector by availing critical information that informs decision and policy making while empowering agriculture dependant-livelihoods for the accelerated attainment of Vision 2030.

Recent developments locally, regionally and globally have demonstrated that agriculture value chains are vulnerable to climatic, economic, health and political shocks.

This calls for the need to formulate holistic and robust measures that build resilience in all agricultural value chains. This journal is unique in that it will be cross-sectorial, dissecting and analysing the interrelated issues of health, agriculture, sanitation, hygiene, climate shocks and building forward better.

The Agriculture and Food Transformation Strategy underpins the transformation agenda in the agriculture sector. Multi-stakeholder efforts involving both the public and private sectors will be required to accomplish the objectives of this strategy.

Agriculture is at least twice more powerful at uplifting and pulling people out of poverty than any other sector.

It is, therefore, vital to ensure that key agriculture information, which helps boost agriculture productivity, is collated, packaged and distributed to all stakeholders.

I wish this journal every success!

Hon Dr Anxious Jongwe Masuka
Minister of Lands, Agriculture, Fisheries, Water and Rural Development

**Editor’s Note**

This debut edition of Zimpapers Agriculture Journal appears at a time when most farmers are seized with marketing the crops they spent the entire season nurturing.

It is exciting to note that there has been a windfall of incentives for almost all crops that are on the market as we speak.

The mood is just bubbly. Tobacco producers are walking away with 75 percent of their earnings in US dollars, cotton farmers getting US$60 per every 200kg bale plus $6.500 (Zimbabwe dollars) on the spot. Maize producers are also not without their fair share of the glee – they are pocketing US$590 plus $75 000 per tonne.

This season is quite fruitful for those who sweated it out. Imagine what that farmer who grew all the three crops is getting – quite a copious amount of earnings.

As you go through this edition, please note that it contains all the technical bits, policy issues, weather updates and market intelligence you need. The list is endless.

This edition will carry important stories that will help you understand why some things turned out the way they did last season.

Obert Chifamba
Flying through the inflow of a cloud, a small aircraft, the size of a Cessna, discharges silver iodide flares that soon ignite before dispersing into thin air. This is a process commonly known as cloud seeding, which is done to help clouds produce rain.

Cloud seeding is a process that involves weather modification or manipulation by humans to improve clouds’ ability to produce rain. Chemicals may be dispersed by aircraft or by dispersion devices located on the ground.

*How Does Cloud Seeding Work?*

Cloud seeding, or rainmaking, or man-made precipitation enhancement is a way to artificially modify the weather by spreading clouds with small particles, to make it snow or rain. In other words, cloud seeding is all about manipulating the clouds so that it rains.

They form when water vapour in the atmosphere cools and later condenses around a particle of dust or salt. These dust or ice particles, also known as condensation nuclei, facilitate the formation of raindrops or snowflakes.

Without the condensation nuclei, rainfall cannot form and, therefore, precipitation does not occur.

Cloud seeding artificially adds condensation nuclei to the atmosphere, significantly improving the ability of a cloud to produce rain or snow. With the added condensation nuclei, cloud seeding provides a base for snowflakes or raindrops to form.

It, therefore, follows that after cloud seeding, precipitation in the form of rain or snow will fall from the clouds back to earth. The intent or goal of cloud seeding is to increase the rain or snow precipitation, suppress hail, reduce lightning, or even dissipate the fog.

It is an efficient tool, especially in and areas of the world, where rainfall is minimal under ordinary circumstances.

Cloud seeding has been practiced by a number of countries including India, the United Arab Emirates, the United States, China, and the United Kingdom. China has used the technology dependently in dry areas of the country.

Three methods can make cloud seeding work:

1. Spraying water into warm clouds
2. Dropping ice into cold clouds
3. Spraying silver iodide or similar crystals into a cold cloud, either from the ground or over the cloud from an airplane

Regardless, the types of clouds play a vital role in ensuring the process is successful. Large droplets are required if rain is expected to form, meaning maritime clouds are a better source of rain than continental clouds.

The temperature of the cloud is also important. For instance, cumulus and stratiform clouds, whose temperature is below -7°C, would be accompanied by precipitation within 25 minutes (Guo, 2018).

*Types of Cloud Seeding*

1. Static Cloud seeding

This first of three methods work when a chemical compound is spread onto the clouds. It is the most commonly used method and involves the spraying of particles of salt, like silver iodide and chloride onto clouds.

Silver iodide (AgI) exists in the environment naturally and is not harmful to humans or wildlife. To do so, a special aircraft, rocket, or other dispersion device is used.

According to ILO, Child Labour is work that deprives children of their childhood, their potential, their dignity, and that is harmful to their physical and or mental development.

Working with the Eliminating Child Labour in Tobacco (ECLT) Foundation, TIMB is driving action to eliminate all forms of child labour in tobacco production in Zimbabwe by 2025.

Tobacco growing families can train children to grow tobacco, but children are not to perform all tasks as some are hazardous for them. The most common risks for children working on farms include:

- Handling pesticides & fertilisers
- Carrying heavy loads &
- Using unguarded machinery.

To strengthen cross-sectoral collaboration for action to end child labour in the sector the Tobacco Industry Working Group on Child Labour (TWCL) was formed in 2021. The working group works to coordinate, strengthen and leverage action plans on child labour in the Zimbabwe tobacco industry, using the Agricultural Labour Practices (ALP) program as a de facto standard.

TWCL’s establishment is a sectoral leadership initiative on child labour, leveraging its common voice to promote standardization, cross-sectoral collaboration and impact focused solutions on child labour.

- Children belong in school not tobacco fields, invest in suitable labour.
- Practice sustainable agriculture without child labour.
- Be aware of, prevent and report all cases of child labour.

For more information on the efforts to eliminate child labour in Zimbabwe tobacco production as well as a progress report of the Tobacco Industry Working Group on Child Labour’s work are available on the TIMB website www.timb.co.zw

---

**Continued on Page 6**
Optimum body condition = maximum production

The productivity of beef cows depends largely on the amount of fat they carry. A herd of cows maintained in the right condition with an ideal layer of fat cover will have more (and healthier) calves than a herd of thin or over-fat cows.

What is body condition scoring?
Body condition scoring is a low cost, hands-on method to determine the condition (amount of fat cover) cattle have. This easy hands-on method is much more accurate than just looking at the animals.

Looks can be deceiving, even to the trained and experienced eye. The shadows that help you see the body’s dips and hollows are harder to see on black cattle. The accuracy of visual evaluation also varies with the season. Black cattle. The accuracy of visual evaluation also varies with the season.

Research has shown that even trained visual evaluators had a hard time accurately predicting the body condition score of cows in winter. The correlation between visual scores and ultrasonic backfat measurements was low (r2 = 0.14) in January to March. Cows in later stages of pregnancy may also appear to have more fat cover. A hands-on evaluation of the body condition score will give you a much better sense of your cows’ fat stores.

In Canada, body condition is scored from 1-5, with 1 being extremely thin and 5 being obese. A score of 3.0 is ideal.

How do I body condition score?
Feel for fat cover with your hands at:
• the short ribs
• the spine
• the hooks and pins
• either side of the tail head

An animal in ideal condition will have a thin layer of fat in these areas, so it will take some pressure to feel the bones.

An underconditioned animal’s bones will be quite prominent and sharp. In an obese animal, you won’t be able to feel any of the individual bones through the thick layer of fat.

Why is measuring body condition worthwhile?
By having an accurate measure of your cows’ body condition, you’ll have a good indicator of how to manage their rations to maximize their productivity, especially reproduction.

Cows with an ideal body condition score (3.0) rebreed up to 30 days sooner than thin cows, which allows more cows to calf in the first 21-day cycle. This can add up to 10kg in calf weaning weight since the calves born earlier in the calving season will be heavier at weaning time. Cows in ideal body condition also have pregnancy rates double those of cows in poor condition, have improved milk production, fewer cases of abortion and stillbirth, healthier calves, and have fewer instances of calving problems.

The salvage value of culled cows in good condition is also higher. Very thin cows are more likely to experience negative outcomes during transport or to be condemned at the plant.

Thin cows reflect poorly on the producer and the industry.

When humans intervene to tame dry spell

From Page 5

The salt particles act as a condensation nucleus, drawing water vapor within the cloud towards them. Moisture will then latch onto them, condensing into water droplets. Subsequently, raindrops form, leading to rainfall.

2. Dynamic Cloud Seeding

This second type of seeding works by boosting the vertical air currents, encouraging more water to pass through the clouds. It, therefore, translates to more rain.

For it to work, about 100 times more ice crystals are required as compared to the static cloud seeding method. It is a more complex method as it relies on a sequence of events working properly.

Scientists within the atmospheric science departments as well as other researchers have broken the dynamic cloud seeding method into eleven separate stages. If one of the stages fails or its outcome is unexpected, the entire process is ruined.

It also makes the technique less dependent as compared to the static cloud seeding method.

3. Hygroscopic Cloud Seeding

This last type utilizes the dispersal of salts through flares or explosives onto the lower parts of a cloud. The salt will become bigger and water will join it. It is a relatively new method that has been described as ‘promising’. It, however, requires more research.

Negative Effects of Cloud Seeding

1. The process is not 100 percent effective

Despite the process being touted as highly successful in creating rain, it has raised concerns as to its actual effectiveness.

The main question that arises is, would rain have come in a certain place even without the need for the seeding? Cloud seeding becomes irrelevant if it would have rained regardless of it being used.

It becomes difficult to ascertain if fluctuations in the level of rainfall, occurring during cloud seeding times, are produced by seeding or could have occurred naturally.

2. The process is very expensive

It is an innovative way of creating rainfall, especially in arid areas. However, it is an expensive process. China, for instance, uses between US$60 and US$90 million every year on such weather modification projects.

Between 1995 and 2003, it used US$266 million for the same causes. As already mentioned, the UAE spent about US$5 million in 2015 for its Research Programme for Rain Enhancement Science.

Such monies could be used to fund other projects given that it will inevitably rain. Also, if the aim is to bring rain to areas severely affected by climate change, wouldn’t it be easier to tackle global warming and climate change, as it would bring a long-lasting solution? The truth about silver iodide is that it may potentially contain dangerous substances.

Despite silver iodide being termed as safe for the environment, there remain concerns about exposure to the same, especially with regards to soil contamination.

Silver iodide has been known to result in incapacitation and possible residual injuries to humans and other animals, especially after chronic exposure.

The toxicity of silver and its compounds in the environment might be low, but they are negative effects nonetheless.

4. Cloud seeding is not the end solution; it may actually worsen global warming and climate change

It has been argued that cloud seeding is just a way of sweeping the effects of pollution and climate change under the rug. Using cloud seeding to bring rainfall does not negate the fact that climate change exists and the process does nothing to fix the initial problem, which is global warming and climate change.

Since the process is expensive, it would be easier to fix the bigger problem and enjoy the long-term benefits of a better climate.

Successful reproductive management in beef cattle

Reproduction is a critical aspect of any species’ life cycle and plays a major role in food animal production. Since the implementation of artificial insemination (AI) in the beef cattle industry, researchers have strived to improve the efficiency of this process. Through research, estrus-synchronisation protocols were developed to facilitate application of AI. However, practical problems involving increased time and labor are associated with improved conception rates with many estrous synchronisation protocols. Over the years, research has focused on finding a balance between conception rates and time/labor costs to carry out an ideal estrous synchronisation protocol.

Programme Planning

Step 1: Institute basic management programmes (hard health and nutrition), a record keeping and planning system that works best for your operation. Planning is the key to any successfully implemented reproductive management system. Between 25 and 30 percent of cattle are usually anestrous (not cycling) at the start of the breeding season. A sound nutrition programme and monitoring of body condition scores can ensure more cows cycling at the onset of the breeding season. In order to plan, you must keep good records and, more importantly, use them.

Calving Season

Step 2: Establish a calving season that works best with your operation. Most producers across the country are part-time farmers with full-time jobs; and, for that reason, different calving seasons may work best for different operations. Calving seasons should also depend on marketing strategies for the calves and grass or supplement availability. Calving seasons are usually classified into three categories: Winter, Spring and Autumn. Calving in the winter season means calving in the coldest time of the year but also enables your calves to wean on summer pasture, leading to higher weaning weights. The cow herd must be watched closely for calving and calf health problems. Having a spring calving cow herd means increased nutritional needs of cows during the winter leading up to calving. Good winter grazing or access to economical feed-supplement is needed for a spring calving herd.

Controlled Breeding Season

Step 3: Logically, if you want a defined calving season, you need a controlled breeding season as well. Having a controlled breeding and calving season is an important tool to use for time management, marketing decisions, and herd efficiency. By controlling the breeding season, you can decrease cost, increase production, and increase profit. A controlled breeding season requires a set of strategies that will establish a specific window in which cattle will be bred. After that time has passed, bulls will be removed, and AI will stop. Open cattle will be sold or held over until next year’s breeding season, depending on culling restrictions and decisions. Having a breeding season allows the nutritional requirements of the herd to be met more efficiently as the entire herd is at the same physiological stage (decreasing cost). Since the calf crop will be born in a certain time period, it offers a producer group marketing options (increasing price/increasing production). Reproductively unsound cows can be identified, allowing producers to make culling decisions based on reproductive performance (increase production).

Reproductive Technologies

Step 4: Implement reproductive technologies into a breeding season to get more cattle pregnant in a shorter period of time. AI is procedure in which a small rod is passed through the cervix of the cow, and semen is deposited in the uterus. It takes advantage of the use of sires that are genetically superior and are not available for natural service. Estrous synchronisation is a tool that is commonly used in tandem with AI and may be used to synchronise estrus and ovulation. This facilitates the breeding of multiple cows in a short time period. For estrous synchronisation to be successful, the protocol must regress the corpus luteum, promote the growth of new follicles, and induce estrus or ovulation.

Timed Artificial Insemination (TAI)

When it is more feasible to implement management strategies to reduce time input, timed artificial insemination (TAI) protocols allow producers to have a pre-determined time of AI decreasing labour costs associated with heat detection. However, cost associated with handling and synchronising may be increased. More cows pregnant early translates into more calves born at the beginning of the calving season. This, in turn, increases average weaning weight relative to calves born without using synchronisation.

Estrous Synchronisation

Synchronisation is usually used to facilitate AI. In some cases, however, AI is not a viable option. Estrous synchronisation can be used with natural service to shorten a breeding and calving season. For a herd that has typically had year-round breeding seasons, synchronisation and natural service may be the step before AI is used. The benefits listed above for estrous synchronisation still hold true, but the time and labour associated with heat detection and AI are not a factor. Therefore, the bull to cow ratio should be lowered to between 1:35 and 1:25, and it should be ensured the bull has passed a full breeding soundness exam (BSE) before the breeding season.

Conclusion

Developing an AI programme is a process and takes extensive planning and forethought. Your local extension officer can help you with developing an AI programme while keeping in mind your operation’s labour/time needs. Numerous synchronisation protocols and technologies exist to assist producers; however, it is left to each individual to determine, which synchronisation protocols and technologies will better their operation.
Mechanisation facilities for '22/23 season

Agricultural mechanisation generally refers to the application of tools, implements, and powered machinery as inputs to achieve agricultural production. It embraces the use of tools, implements and machines for agricultural land preparation, crop production, harvesting, preparation for storage, transportation, storage, and on-farm processing. It includes three main power sources: human, animal, and mechanical.

1.1 The manufacture, distribution, repair, maintenance, management and utilization of agricultural tools, implements and machines is covered under this discipline with regard as to how to supply mechanization inputs to the farmer in an efficient and effective manner.

1.2 Farm mechanisation operations that include ploughing, ripping, planting, boom-spraying, fertilizer spreading, trailer works, harvesting, shelling etc. accounts for more than 60 percent of the production cost for most of our strategic commodities such as maize, soya beans, wheat and small grains.

1.3 The operations that are carried out by most farmers includes ploughing or ripping, discing, planting, fertilizer spreading, boom-spraying, harvesting and shelling.

1.4 However, crop yield is directly linked to time of planting meaning timely access to farm equipment for conducting all operations for crop establishment is critical.

1.5 Therefore access to farm machinery is critical for increased crop production, reduced drudgery and labours shortage.

2. NATIONAL MECHANISATION REQUIREMENTS

2.1 The country continues with a huge deficit of tractors and related implements. In 1998, before the land reform, the estimated number of tractors and related implements in the country was 26,000. Our national requirement for tractors and related implements is over 40,000 and only about 10,000 is currently available of which about 60 percent is functional. This indicates a glaring gap of more than 30,000 tractors hence the importation and local production of farm equipment remains inevitable so as to bring transformation of the agriculture sector to reality. The capacity of the 6,000 available functioning tractors is estimated to be 60,000 ha against a targeted area of about three million hectares for maize, traditional grains and soya beans production under the 2022/23 summer cropping season.

Table 2.1: National Status of Farm equipment

<table>
<thead>
<tr>
<th>Type of Machinery</th>
<th>National Requirement</th>
<th>Available Machinery</th>
<th>Need Repairs</th>
<th>Deficit</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Tractors</td>
<td>30,000</td>
<td>10,000</td>
<td>20,000</td>
<td>4,000</td>
</tr>
<tr>
<td>2. Combine Harvesters</td>
<td>600</td>
<td>200</td>
<td>150</td>
<td>100</td>
</tr>
<tr>
<td>3. Rippers</td>
<td>8,000</td>
<td>50</td>
<td>200</td>
<td>150</td>
</tr>
<tr>
<td>4. Disc Harrow</td>
<td>10,000</td>
<td>2,000</td>
<td>8,000</td>
<td>4,000</td>
</tr>
<tr>
<td>5. Planter</td>
<td>10,000</td>
<td>1,500</td>
<td>8,500</td>
<td>100</td>
</tr>
<tr>
<td>6. Sprayers</td>
<td>5,000</td>
<td>50</td>
<td>4,500</td>
<td>50</td>
</tr>
<tr>
<td>7. Boom sprayers</td>
<td>5,000</td>
<td>50</td>
<td>4,500</td>
<td>50</td>
</tr>
<tr>
<td>8. Sheller</td>
<td>5,000</td>
<td>50</td>
<td>4,500</td>
<td>50</td>
</tr>
</tbody>
</table>

2.2 To close the gaps in farm machinery the Government of Zimbabwe is currently involved in the importation of sophisticated kind of farm equipment such as tractors, combine harvesters, planters, motorised and trailed boom sprayers whilst the simple implements such as ploughs, rippers, disc harrows, hitched boom sprayers, trailers and shellers/shellers are being procured locally through capacitation of the local manufacturers under the following facilities

2.2.1 Belarus Farm Mechanisation Facility

2.2.1.1 The facility is for US$43 million dollars divided into two phases and will see the country receiving 1,850 tractors, 76 combine harvesters, 210 planters and 300 trailed water tanks.

2.2.1.2 The second phase of the Belarus Farm Mechanisation, which is worth US$42 million, is set to unlock 330 tractors and 90 combine harvesters. Already 320 tractors have been delivered. The equipment will be distributed to creditworthy farmers through local banks.

2.2.2 John Deere Farm Mechanization Facility

2.2.2.1 The facility is 19,000 tractors, 80 combine harvesters, 600 planters, 150 boom sprayers and 150 tractors.

2.2.2.2 The facility was divided into two phases and the first phase is for US$20 million with 235 tractors, 40 combine harvesters and 100 boom sprayers. To-date 60 tractors and 36 combine harvesters, 68 disc harrows and 48 planters have been delivered and distributed and will increase the tillage and harvesting capacity by 6,000 and 22,000 hectares respectively. The balance of the equipment under first phase is being unlocked in tranches.

2.2.3.1 Local Manufacture of Farm Implements

2.2.3.1.1 To increase access to farm machinery, the Government of Zimbabwe is financing the local production of farm implements, which will be used as attachments to tractors being imported under the John Deere and Belarus Farm Mechanisation facilities.

The equipment that is being manufactured includes 900 rippers, 500 disc ploughs, 800 disc harrows, 500 boom sprayers and 100 maize shellers. Five local companies have been contracted to supply 250 disc harrows, 700 disc ploughs, 500 rippers, 500 boom sprayers and 200 maize shellers. Part of the funds for procurement of these locally manufactured implements has been availed and some of the companies have already started to deliver.

2.2.4 AFC Leasing Company of Zimbabwe

2.2.4.1 To ensure that those farmers who cannot afford to purchase agricultural machinery have access to machinery, the Government, through the Ministry of Lands, Agriculture, Fisheries, Water and Rural Development created the AFC Leasing Company of Zimbabwe whose mandate is to provide affordable services to all categories of farmers from land preparation, harvesting, shelling and drying.

2.2.4.2 The AFC Leasing Company received the Government of Zimbabwe 230 tractors, 40 combine harvesters, 4 lowbed trucks, 150 planters, 300 disc ploughs, 300 disc harrows and 300 machinery which are accessible to all farmers. The farmers pay for the services through either cash payment or a stop order system at GMB depots after delivery of their produce.

2.2.4.3 AFC Leasing Company started operations in September 2020 as a directive by the Government of Zimbabwe.

3. MANDATE FOR PROVISION OF MECHANISATION SERVICES

3.1 The Department of Agricultural Engineering, Mechanisation and Soil and Water Conservation under the Ministry is mandated to ensure optimisation of farm mechanisation, coordination for timely access to farm machinery by farmers, procurement of farm equipment, research on farm mechanisation, training of machinery operation, repair and maintenance, designing, pegging and construction of contours, small earth dams and weirs as well as guitley reclamation.

Martin Munyati is the acting director, Division of Agricultural Engineering and Mechanisation under the Ministry of Lands, Agriculture, Fisheries, Water and Rural Development.
Common challenges wheat farmers face every season

Poor cultivar choice, cereal-based mono-cropping

Most irrigation wheat farmers in the cooler and central irrigation areas practise ‘wheat on maize’ rotations. In sustainable agriculture, monocrops are strongly discouraged because they cause pest build-ups as well as soil fertility depletion. The general rule of thumb is that crops in the same family should never be sown in succession. A good crop rotation increases yield and profit, and allows for sustained production.

Mono-cropping causes annual yield depressions of 5 to 20 percent, and no amount of fertiliser or pesticide can compensate completely for that difference. The benefits rotation may not be well understood but improvements in soil physical properties and soil organic matter probably play a beneficial role in rotations that include legumes. It is common knowledge amongst commercial farmers that mono-cropping is not good for the soil, and it is important to understand the reasons for this continued practice by farmers.

Farmers in the cooler central and warmer northern irrigation areas pointed out that they practice wheat on maize rotation for economic benefits. Wheat is the only winter crop option for the farmers. Planting wheat on maize allows the farmers to double-crop and achieve two crops in one year, which makes the system more profitable through maximising resource utilisation.

Continued on Page 10
Common challenges wheat farmers face every season

Some farmers say they plant wheat on maize continuously because it is much more profitable and easier for them than rotating wheat with soya bean (Glycine max L.).

The cereals-only system was attractive for them because of the ease of management and marketing, and the associated lower risk due to reduced up-front costs and more reliable performance in difficult seasons.

In wet conditions under center pivots, soya beans can suffer many devastating disease problems that can require expensive chemical control measures.

In conditions of water scarcity, soya beans are much more sensitive than maize to hot and dry conditions. In search of solutions to close wheat yield gaps, research support for the current intensive wheat-maize cropping systems needs to be maintained.

This scenario is likely to be better accepted by farmers. Apart from their profitability, intensive cereal cropping systems provide the added benefit of high crop residue biomass yields for feeding livestock, especially given that most Zimbabwean farmers practice mixed crop and livestock farming.

Cultivar choice

It can be noted that some farmers expressed the unavailability of high-yielding cultivars as the primary reason for poor irrigation wheat yields. For various confidentiality reasons, most farmers interviewed were reluctant to disclose information on the specific cultivars which they had planted during the season.

Such information could have been useful in determining the popularity of different cultivars. Nonetheless, there is a feeling that irrigation wheat farmers are not fully embracing the newest, most well-adapted, and high-yielding cultivars, and hence was sometimes experiencing low yields.

This issue is also thought to be related to practices such as seed retention by the farmers, as well as risk avoidance through adherence to a tried-and-tested cultivar. There are many irrigation wheat cultivars currently on the market from which farmers can choose.

Seed pricing is generally the same across Zimbabwean seed companies, and it is only the newer cultivars that tend to cost a bit more.

It should also be noted that seed costs typically contribute less than five percent of establishment costs for a commercial irrigation wheat crop in Zimbabwe, hence lower seed price is seldom the major reason for choosing a lower yielding cultivar over a higher-yielding one.

Wheat diseases

Six diseases caused by fungal pathogens have been identified as the most problematic causes of yield loss for irrigated wheat in Zimbabwe.

Three physiological disorders — namely lodging, frost damage, and pre-harvest sprouting — are also considered important.

Fusarium head blight (Fusarium graminearum) was mentioned most frequently as a problematic disease in all irrigation areas. Very few such diseases were observed on farmers’ fields through inspection.

We note with concern that many scientific research articles on wheat production constraints in Zimbabwe are typically sentimental and tend to report impressively high potential yield losses and large areas that are at risk without much scientific basis as they try to justify their studies.

Results show that different wheat scientists have diverse views on the most important causes of yield loss on irrigated wheat fields in Zimbabwe, and these views tend to be biased towards the area of specialization for the individual scientists.

A general recommendation is that researchers must work closely with farmers to develop farmer-based technologies that are easily acceptable to farmers to help remove constraints on yield as well as improve farmer profits.

While breeding for yield, the focus should also be on reducing input requirements, such as water and fertilisers.

The wheat industry needs cultivars that are water and fertiliser efficient for improving the profitability of wheat farming. Future research efforts must focus on resource-conserving technologies for sustainable management of intensive cereal-based cropping systems of Zimbabwe, rather than conservation agriculture per se.

Funding for agronomic research aimed at refining wheat production practices towards reducing production costs in this unit should be increased.

Considering the constraints highlighted in this article, there is a need for more government resources and commitment in terms of the policy to set in motion necessary actions to support irrigation wheat farmers.

Aircraft s The fungus Fusarium graminearum makes toxins that harm wheat kernels
Ukrainian war: Boomerang effect on wheat industry

Farmers accessing the AFC funding facility also had a three percent increase in planted area while a negative trend was noted from farmers receiving CRZ funding with planted area falling by about 15 percent from a high of 44,446 to 38,898 ha.

The overall wheat area increased to around 78,000 ha capable of producing over 380,000 tonnes, thanks to the manoeuvres of self-financed farmers who planted 80,039 ha with an expected yield of around 36,000 tonnes.

Wheat is the second most important cereal crop after maize with an annual consumption of above 400,000 tonnes and used to have annual imports of up to 80 percent for some years.

In Zimbabwe wheat is mainly used as a human food in the form of bread, pasty products, breakfast cereals, cake, etc. Whereas wheat consumption demand has been dramatically increasing due to population growth, increase in urban population and changes in consumer tastes and consumption pattern, local production supply has not yet met demand, the gap between production and consumption being filled by imports.

The importing of wheat involves the expenditure of foreign currency, hence the call by the Government for farmers to increase production as a healthy way of import substitution.

Over the years, the Government has made strategic interventions to drum up wheat production with the current season expected to see production overtake consumption and help the country save on foreign currency expenditures.

According to TradeMap, Zimbabwe is ranked number 74 in terms of global wheat importing countries, importing wheat to the tune of USD102, 799, 000 for 2020.

Wheat production history

In the 1980s when Zimbabwe attained independence, the Government walked on a tight rope with conflicting concerns: on one hand it had to keep wheat farmers (mostly large-scale white commercial farmers) motivated by paying a high producer price; whilst on the other end it did not want the bread price to rise. Hence it had to keep wheat producer prices high and consumer prices low.

Wheat production suffered drought in the 1982-1983 period with output reaching its lowest volumes of 98,000 tonnes from a reduced hectarage 21,000.

As a result of the drought the Government initiated the National Irrigation Fund to stimulate election of national water reservoir as security against drought as well as to motivate farmers to embark on irrigated wheat production.

In its endeavour to achieve self-sufficiency in wheat production the Government introduced a loan system with low interest rates for irrigation development in 1985, which was tied to wheat production and set favourable pre-planting producer prices that were set conservatively and pegged below import parity levels. These policy measures led to an increase in wheat production area to 30,000ha in 1989 and a record output of 126,823 tonnes of wheat realised.

Figure 1: Mass and value of Zimbabwean wheat imports (2010-2020) — Source: Zimstats

Russia is the world’s number one wheat exporter and largest producer after China and India while Ukraine is also among the top five wheat exporters worldwide.

Of course Zimbabwe is not watching the situation coming to a head without exploring all possible options at its disposal, key among them the effective deployment of human and material resources that can help take production a gear up.

The Government set a target of 75,000 hectares of wheat for the 2022 winter cropping season and set the pre-planting floor producer price of the cereal at $175.741. 86 per tonne for ordinary grade at a 15 percent return on investment while the premium grade will fetch $193.10 per tonne that was meant to incentivise farmers to commit more land to winter wheat production.

The Presidential Input Scheme (PIS) was subsequently overplayed and overshoot the 10,000 prospective farmers registering to grow wheat.

The Government paid attention to the prospective farmers’ needs and increased the sponsored area by 75 percent to around 10,000 hectares.

Wheat farmers under the Food Crop Contractors Association (FCCA) grouping followed suit with a 24 percent increase in planted area to around 30,000 ha capable of producing 180,000 tonnes.

South Africa is on pole position it terms of wheat and wheat products imports followed by United Kingdom, Ukraine, Germany and Canada in decreasing order for 2019 as shown in figure 2 below.

Figure 2: Share of wheat imports by country (2019) — Source: TradeMap

In its endeavour to achieve self-sufficiency in wheat production the Government introduced a loan system with low interest rates for irrigation development in 1985, which was tied to wheat production and set favourable pre-planting producer prices that were set conservatively and pegged below import parity levels. These policy measures led to an increase in wheat production area to 30,000ha in 1989 and a record output of 126,823 tonnes of wheat realised.

According to Africa news in 2021 global wheat prices rose by three percent while reports indicate that wheat prices surged more than 50 percent the week preceding the Ukrainian conflict.

Figure 1 below shows the trend in wheat imports, which is gradually decreasing over the years.
THE Agricultural Marketing Authority (AMA) is a statutory body established by the Agricultural Marketing Authority Act (Chapter 18:24). AMA is a public entity under the Ministry of Lands, Agriculture, Fisheries, Water and Rural Development.

The overall mandate of AMA is to effectively regulate, supervise, develop and administer the production and marketing of all agricultural products in Zimbabwe.

The work of AMA is specifically designed on the implementation of programs aimed at fulfilling the statutory functions as defined in the Act. These programmes directly support Government policies related to agriculture, in particular the Agriculture and Food Systems Transformation Strategy and the National Development Strategy 1.

Key functions
AMA’s key functions are to:
- Regulate the participation in the production, buying or processing of any agricultural product in Zimbabwe
- Promote orderly marketing and fair pricing of agricultural products
- Promote efficient administration of the marketing of agricultural products
- Co-ordinate value chain player activities
- Borrow and lend money to marketing authorities
- Promote contract farming of strategic crops
- Advise the government on the formulation of national policies in the regulation of marketing of any agricultural product and matters connected with prices of any agricultural product
- Collect, collate, and analyse data for informed policies, regulations, investment decisions and technical service delivery

Registration of growers/farmers and agricultural value chain players
AMA has embarked on a nationwide grower registration programme to create an authentic database that will be used for inputs distribution and agri-financing among other marketing initiatives. AMA also registers all agribusinesses and ensures submission of periodic returns on various aspects of their operations to inform vital statistics required for planning and policy formulation by the Government.

Capacitation of farmers
Farming, like any other business, continues to evolve hence the need for continuous training of farmers on contemporary farming trends. AMA working together with stakeholders in extension services such as Agriex, facilitates training workshops on various themes that enable farmers to realise success in their ventures.

Promoting collaborations
To ensure that smallholder farmers have easy access to markets and improve their livelihoods, AMA fosters synergies across various value chain players to improve agriculture production and profitability. AMA is registering farmers and organising them into clusters making it easy to link them with contractors and off-takers.

Creating local, regional and international markets
AMA is closely working with relevant stakeholders to establish modern market infrastructure for fresh produce that allow for robust marketing. AMA is also responsible for raising capital to support the production and marketing of agricultural products through agro-bills and other financial instruments. This is in addition to efforts targeted at promoting contract farming and encouraging private sector investment in agriculture.

Our contribution to Vision 2030
AMA contributes to the ongoing transformation of agriculture sector in Zimbabwe in support of the attainment of Vision 2030 through:
- Effective regulation of the production and marketing of all agricultural products in Zimbabwe
- Mobilisation of value chain financing to promote agricultural productivity
- Capacity building of farmers and other agricultural players through targeted training programs
- Promoting collaborations across various value chain players to improve agriculture production, productivity and profitability
- Creating structured markets that promote efficiency in the marketing of agricultural produce
- Creating market linkages to enhance market access
- Adoption of technology to facilitate agricultural growth.

Key Stakeholders
AMA’s key stakeholders are:
- Government
- Producers of agricultural products
- Financial institutions
- Government contractors
- Transporters of agricultural products
- Processors of agricultural products
- Inputs and utility suppliers and distributors
- Buyers and contractors
- General public

Twitter: @ChifChiduku

Honest arbiter
- We are impartial and committed to creating an enabling environment for agricultural production and marketing.

Effective enabler
- We mobilise resources for agricultural development.

Effective partner
- We develop market linkages and enhance the ease of doing business for our partners and stakeholders.

Our commitment
AMA enforces the rules and regulations that govern the agricultural sector in Zimbabwe.

Dynamic facilitator
- We are a catalyst for increased production and enhanced productivity.

--- Life is either a daring adventure or nothing at all ---
Herni’s meteoric rise in horticulture

By Edgar Were

Avid disciple of the philosophy — the eye is the best fertiliser every crop needs, Herni Herni of Nyama-godha Farm in Machete, Masvingo Province, has successfully transferred his administration acumen at the helm of the Horticulture Promotion Council (HPC) to his field.

Herni was the chief executive officer of HPC from 1990 to 2000. Armed with the wealth of experience he gained at HPC, he chose to exchange his white-collar office for a work suit and gum boots on the farm.

He got his dream off by purchasing the above-mentioned farm that is situated in Murewa district under Chief Mangwende. The farm has a total of 440 hectares, 200 of which are arable.

He had to surrender title deeds for his Harare house as collateral to access finance and start his business. The next thing, Herni relocated from the city to settle on the farm together with his wife Netsai and their four children.

As a new entrant in the export farming business, he started as an outgrower farmer under what they call the ‘Hub and Speak’ model working with farmers producing crops for export. The ‘Hub and Speak’ model is used metaphorically to depict the way a bicycle wheel works with spokes attached to the hub to be functional. This was an opportunity for him to learn the trade and its requirements especially with food products that had to meet set quality standards. As he was not yet Global GAP certified, he had to be taken on board by Shona Products group with his produce going from Nyamagodha to Gombo Farm under the ‘Hub and Speak’ model. Gombo Farm provided aggregation services, logistics and access to market for his produce.

More than 20 years later, his Nyamagodha Farm has grown into an independent entity — a hub providing training, extension services and access to markets for surrounding smallholder farmers.

Herni’s journey the year 2000 to the present had its fair share of highs and lows with the first five years being the most cherished as his business was flourishing.

“THERE were many incentives from the Government during this period and I managed to settle my loan, which had a five-year repayment period in just three years.”

“The year 2008 is one I want to forget quickly, as our main horticulture market, the European Union (EU) banned exports from Zimbabwe for products like tobacco, maize, peas, which saw our business crumbling,” Herni observed recently.

The shock of the horticultural sector’s reliance on a single market was a blessing in disguise, as it saw Herni diversifying from his tobacco next season. He also has livestock under his fold.

Herni has 80 permanent and 70 seasonal workers with females constituting 75 percent of his horticulture workforce while the male-female ratio is 50-50 for his tobacco ventures.

To meet the EU markets’ inatiable demand for his horticulture products, he has contracted smallholder growers under the Shungu Irrigation Scheme to augment his supply.

He has contracted 10 irrigation scheme members to grow either mangetout or sugar snap peas on 0.4ha each with harvesting of the crop currently underway. The outgrower farmers expect to get between US$4 000 and US$3 000 each this year.

Shungu Irrigation Scheme secretary/ coordinator Mr Felix Machando commented: “Ten of our members are either doing mangetout or sugar snap peas on 0.4ha each. We have started harvesting and we intend to continue for the next six weeks. We are expecting incomes of between US$4 000 and US$3 000 for each member. During this harvesting process we have created jobs for community members with some getting between US$35 and US$40 per day depending on one’s speed and efficiency.”

Next year they are expecting to increase the plot sizes to at least 0.8ha each spurred by this year’s projected rewards. For now, they are facing problems of equipment theft forcing them to spend nights at the fields.

Meanwhile, the smooth-speaking Herni recently joked that he was not a price setter but had an agent in Europe who scouts for high prices and secures the market for him so he did not need the credit for the farmers’ delight.

“The advantage of exporting mangetout and sugar snap peas is that we do so when it is winter here and our competitor, Gau-mala will not be producing. This allows us to score high prices on the basis of supply and demand factors.”

“African countries like Kenya, Morocco, Zambia are also increasing their supply to the EU market but our unique selling proposition is the ability to attend to details using manual labour against most developed countries that have mechanised their operations,” added Herni.

They export their produce to the United Kingdom (UK), Netherlands and Belgium but mostly prefer the UK market to the rest because of its strong currency, the pound.

“As we look into the future, we ought to be exporting our products 12 months of the year and not just in winter like we are doing now,” Herni explained.

Herni and his team have to make sure their crops are free from worms and diseases like blackspot while sticking to their traditional chemical distribution agents whose remedies are not offensive to consumers. He cited the challenge of chemicals that leave residues that clients from their markets do not like before isolating an incident in which some Kenyan horticulture producers applied some chemicals without checking out the allowed Maximum Residue Level (MRL) under the phytosanitary regulations, which cost Kenya’s entire horticulture sector dearly.

Horticulture exports require phytosanitary certificates and must be cleared at the country’s ports of exit wherein plant inspectors are stationed.

As a way of vertical integration as mangetout peas are rich in protein, Mr Herni uses waste from mangetout and sugar snap peas processing for cattle fattening.

To trim costs, Herni and crew use sea freight for mangetout and sugar snap peas exports. It takes four to six weeks for the shipped produce to reach its destination.

When all is said and done, Herni and his proteges’ blame the absence of patient capital for farmers’ failure to do perennial crops like citrus, tea, coffee and the high value macadamia nuts, which they say is another factor derailing increased investment.

“The Reserve Bank of Zimbabwe’s (RBZ) policy of mandatory liquidation of 50 percent of foreign currency export proceeds at the interbank rate is dampening the investment mood,” noted Mr Herni.

The increased cost of production wherein input stockists are pricing their products using exchange rates drawn from the parallel rate are putting a cost-price squeeze on exporters and undermining viability.
The Red-billed quelea is the most damaging pest of wheat, sorghum and millet in Zimbabwe. Quelea is a small passerine bird of the weaver family Ploceidae, native to sub-Saharan areas in Zimbabwe forming part of Parks and Wildlife Estates with the neighbouring countries. Some breed in colonies in border areas of Zimbabwe such as Deka, Pandamatenga, Beitbridge, Mukumbura and Gonarezhou. Known traditional roosting sites include Dande, Save Valley Conservancy, Matetsi, Deka, Mana pools, Chewore, Nyamapanda, Mwenezi, Gonarezhou, Binga, Beitbridge, Gwanda and Plumtree.

So far reports are coming in from Mashonaland Central and West, Midlands, Matabeleland North and Masvingo provinces with early wheat crops now approaching the early vegetative stages. There are adequate chemicals and more chemicals are being dispatched to the different parts of the country in preparedness for control. The Department had also activated for aerial spray services in the event of serious onslaughts. The Department had also preparedness for control. Quelea control act chapter 19:30 The Zimbabwe Parks and Management Authority under Ministry of Environment, Climate, Tourism and Hospitality Industry collaborates with the Migratory Pests and Biosecurity Control Department under the Ministry of Lands, Agriculture, Fisheries, Water and Rural Development in controlling quelea birds in Zimbabwe.

Quelea control and management is done using the Quelea Control Act Chapter 19:30 The Zimbabwe Parks and Management Authority under Ministry of Environment, Climate, Tourism and Hospitality Industry collaborates with the Migratory Pests and Biosecurity Control Department under the Ministry of Lands, Agriculture, Fisheries, Water and Rural Development in controlling quelea birds in Zimbabwe. The owner or occupier of any land upon which quelea birds are nesting or roosting shall, as soon as possible and in any event within seven (7) days after he first becomes aware of the nesting or roosting of quelea birds on his land, give notice thereof to—

1. the local authority for the area in which his land is situated; or
2. (i) the nearest—
   (a) police station; or
   (b) Department of Agricultural Rural Development and Advisory Services (formerly AGRITEX) or
   (ii) Department of Parks and Wildlife Management Authority.

In giving the notice the owner or occupier should provide details of the locality upon his land where the quelea birds are nesting or roosting and any other related information. Agriculture Extension officers are found in all wards of Zimbabwe while there are four dedicated Problem Bird Control Units under Zimbabwe Parks and Wildlife Management Authority namely:

1. Hunyani Estates at Darwendale Dam which covers Mashonaland West, Mashonaland East and Midlands,
2. Bindura Office covers Mashonaland Central
3. West Nicholson Office covers Matabeleland North and South
4. Birchmore Bridge Field Office covers Masvingo and Manicaland

The Migratory Pests and Biosecurity Control Department has substations in Muzarabani, Nyanga, Mazowe, Gokwe and Magunje. Farmers are therefore requested to scout fields for early bird attack and report to nearest Extension officers or contact Migratory Pests and Biosecurity Control Department on cell 0772868804 or landline (044) 700143 (Mr. Nyamutukwa), The Department has also established a Quelea Command Centre (0772868804, 0775252878, 0775259560) and farmers and extension staff can report any quelea sightings, direction of flights and their breeding or roosting sites.
Veld fires have become one of the most topical environmental issues with terminal effects in Zimbabwe. Over the years, infrastructure and property worth millions of dollars have been lost in the inferno. Agricultural produce such as maize, soya bean and wheat have been gutted down by fires thus compromising the nation’s efforts in reviving food security and nutrition status, as well as attainment of the sustainable development goal number 2 on zero hunger.

Veld fires continue to destroy human life, since 2009 to date, more than 120 lives have been lost in the scourge.

Fire Risk Prediction Modelling

In an effort to enhance preparedness and stimulate fire pre-suppression strategies, the Agency conducts a fire risk prediction modelling, to determine the risk that the country faces against veld fires, come the dry season.

The fire risk prediction modelling is an annual event, done before the dry season, so as to inform decision making and strategies to be implemented during the particular year, in order to prevent veld fires and create resilience against the same.

The 2022 fire risk prediction modelling indicated that the country is generally in the medium (40.3 percent) to high (34.5 percent) risk to veld fires, and about 2.4 percent in the extreme risk as shown in figure 1.

This is can be attributed to the good rains received during the 2021/2022 season. The provinces at high to extreme risk are Matabeleland North, Midlands, Mashonaland West, East and Central. Similarly, the districts at extreme risk include Shamva, Makonde, Zvimba, Mazowe, Goremongoni, Hwedza, Mutasa and Nyanga. The rest of the country remains in the low risk.

The Veld Fire Season

The veld fire season or fire restriction period in Zimbabwe is defined by law. Statutory Instrument 7 of 2007 on Environmental Impact Assessment and Ecosystems Protection Regulations clearly defines the 31st of July to the 31st of October each year as the period when people are not supposed to use fire outside the residential and commercial premises.

This set period held true in 2007 at the time when regulations were promulgated but this has now changed due to climate change and its impacts resulting in fires occurring before and after the defined period.

Veld fire outbreaks are a function of biomass which is supported by rain, oxygen which supports combustion and the heat which triggers combustion. If there are good rains in a season then we expect fierce fires because of the presence of the fuel load.

The beginning of the rains marks the end of the fire season, therefore early rains result in shorter fire season while late rains elongates the fire season.

In order to cater for the impacts of climate change, particularly the changes in rainfall patterns, the country will henceforth not have a fixed fire season.

The seasons will in each year vary in line with the climatic conditions and as such on an annual basis the Minister will notify the nation through a notice in the Government Gazette.

The 2022 Fire Season

The Minister of Environment, Climate, Tourism and Hospitality Industry, Mangaliso Ndhlovu, exercised his powers, in terms of the Environmental Management Act (Chapter 20:27) by declaring the 2022 fire season.

The Minister, in consultation with the Meteorological Services Department and the Ministry of Lands, Agriculture, Fisheries, Water and Rural Development, and having studied climate change and rainfall patterns, declared the fire season for 2022 to be the period between the 31st of July and the 30th of November, according to Government Gazette GN 2346 of 17 June 2022. This was determined using the long range weather forecast.
**Improved tolerance to drought stress**

**Improved nutrient uptake**

**Protection against pests and disease**

**Improved plant growth and root development**

---

**Rhizovator™**

**THE ROOT OF SUSTAINABLE PRODUCTION**

Rhizovator is designed to improve the growth of roots, which will result in better nutrient uptake.

Increased nutrient uptake leads to healthier plants that can withstand disease and environmental stresses much more effectively.

**The benefits of using Rhizovator**

- Better Germination
- Early establishment of seedlings
- Early development of seedlings
- Bigger, stronger plants
- Higher root mass
- Better root growth
- Increased nutrient use efficiency
- Better pathogen resistance
- Early micronutrient access

---

### Agriculture Market Prices - August 2022

<table>
<thead>
<tr>
<th>Commodity type</th>
<th>Units of measurement</th>
<th>Currency</th>
<th>Harare Mbare</th>
<th>Bindura</th>
<th>Kwekwe</th>
<th>Bulawayo</th>
<th>Masvingo</th>
<th>Zvishavane</th>
<th>Kadoma town</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Minimum</td>
<td>Maximum</td>
<td>Minimum</td>
<td>Maximum</td>
<td>Minimum</td>
<td>Maximum</td>
<td>Minimum</td>
</tr>
<tr>
<td>Cabbage</td>
<td>head</td>
<td>USS</td>
<td>0.24</td>
<td>0.44</td>
<td>0.50</td>
<td>0.75</td>
<td>1.50</td>
<td>0.50</td>
<td>0.95</td>
</tr>
<tr>
<td>Covo</td>
<td>bundle</td>
<td>USS</td>
<td>1.63</td>
<td>3.00</td>
<td>0.50</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>1.17</td>
</tr>
<tr>
<td>Rape</td>
<td>bundle</td>
<td>USS</td>
<td>1.25</td>
<td>2.00</td>
<td>-</td>
<td>1.00</td>
<td>1.17</td>
<td>0.73</td>
<td>1.00</td>
</tr>
<tr>
<td>Tsungwa</td>
<td>bundle</td>
<td>USS</td>
<td>1.25</td>
<td>2.00</td>
<td>-</td>
<td>0.50</td>
<td>0.50</td>
<td>1.00</td>
<td>1.25</td>
</tr>
<tr>
<td>Tomatoes</td>
<td>sandak</td>
<td>USS</td>
<td>17.75</td>
<td>28.00</td>
<td>-</td>
<td>26.25</td>
<td>27.50</td>
<td>15.25</td>
<td>20.00</td>
</tr>
<tr>
<td></td>
<td>wooden box</td>
<td>USS</td>
<td>4.88</td>
<td>6.25</td>
<td>5.00</td>
<td>8.00</td>
<td>1.00</td>
<td>1.00</td>
<td>2.00</td>
</tr>
<tr>
<td>Cucumber</td>
<td>60 kg semia</td>
<td>USS</td>
<td>20.00</td>
<td>24.75</td>
<td>15.00</td>
<td>17.00</td>
<td>15.00</td>
<td>15.00</td>
<td>-</td>
</tr>
<tr>
<td>Butternuts</td>
<td>bucket</td>
<td>USS</td>
<td>24.00</td>
<td>26.75</td>
<td>15.00</td>
<td>16.25</td>
<td>5.00</td>
<td>5.00</td>
<td>6.00</td>
</tr>
<tr>
<td>Carrots</td>
<td>60 kg semia</td>
<td>USS</td>
<td>25.25</td>
<td>34.00</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Onions</td>
<td>10kg packet</td>
<td>USS</td>
<td>5.00</td>
<td>8.63</td>
<td>-</td>
<td>7.00</td>
<td>7.75</td>
<td>8.00</td>
<td>10.00</td>
</tr>
<tr>
<td>Potatoes</td>
<td>15kg packet</td>
<td>USS</td>
<td>3.25</td>
<td>7.88</td>
<td>10.00</td>
<td>10.00</td>
<td>6.00</td>
<td>6.00</td>
<td>7.50</td>
</tr>
<tr>
<td>Sweet potatoes</td>
<td>20lt bucket</td>
<td>USS</td>
<td>3.25</td>
<td>5.75</td>
<td>4.00</td>
<td>6.00</td>
<td>4.50</td>
<td>5.75</td>
<td>6.00</td>
</tr>
<tr>
<td>Watermelon</td>
<td>Single</td>
<td>USS</td>
<td>0.50</td>
<td>3.00</td>
<td>1.00</td>
<td>1.00</td>
<td>0.88</td>
<td>4.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Sugar beans</td>
<td>20lt bucket</td>
<td>USS</td>
<td>16.00</td>
<td>18.00</td>
<td>-</td>
<td>24.00</td>
<td>24.00</td>
<td>20.00</td>
<td>20.00</td>
</tr>
<tr>
<td>Groundnuts</td>
<td>20lt bucket</td>
<td>USS</td>
<td>21.75</td>
<td>24.00</td>
<td>-</td>
<td>20.00</td>
<td>20.00</td>
<td>24.00</td>
<td>27.50</td>
</tr>
</tbody>
</table>