



# PREPS FOR WHEAT HARVESTING

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**Kundai Lucy  
Zvaraya**

# Preparing to harvest wheat

**PREPARING** for wheat harvesting is a critical phase in farming, requiring attention to detail to ensure successful yields. Here's a guide to help you get ready:

## 1. MONITORING CROP READINESS

Preparing for wheat harvest requires careful monitoring of crop readiness to ensure that the timing of the harvest maximises yield and grain quality. Here's an expanded guide on assessing and preparing based on crop readiness:

### Understanding Growth Stages

- **Boot Stage (Pre-Harvest):** The wheat head is still enclosed in the sheath. The crop is green, and the kernels are still developing. This stage is primarily for monitoring, as harvesting at this point would result in immature grain.
- **Milk Stage:** The grain is forming and contains a milky substance. The crop is still green, and harvesting now would yield grain with high moisture content, which is undesirable.
- **Dough Stage:** The grain moves from a soft dough consistency to a firmer dough. This stage is critical as it indicates that the grain is maturing. The crop will start turning yellow, and moisture content will gradually decrease.
- **Ripe Stage:** The crop has turned golden yellow, the grains are hard, and the moisture content is optimal for harvesting. The wheat is ready to harvest when the kernels are firm and the plant is dry enough that it can be broken by hand.

### Monitoring Moisture Content

- **Optimal Moisture Levels:** The ideal moisture content for wheat harvesting is typically between 14 and 16 percent. Harvesting within this range minimises the risk of grain spoilage and reduces the need for post-harvest drying.
- **Testing Moisture:** Use a calibrated moisture metre to test the grain. Take samples from multiple parts of the field to get an accurate overall reading. Monitor the weather as well, since humidity and rainfall can affect moisture levels.
- **Timing the Harvest:** If the moisture content is higher than desired, waiting for a few dry days might reduce it naturally. However, if moisture content is too low, the grain could become too dry, leading to shattering during harvesting.

### Field Inspections

- **Visual Inspection:** Regularly walk through the field and visually inspect the crop. Look for signs that the wheat is maturing, such as the colour change from green to golden yellow, and check that the heads are drooping, which is a sign that the crop is ready.
- **Kernel Test:** Select a few heads

and perform a kernel test by pinching the kernels between your fingers. The kernels should be hard and resist denting. If they easily dent, the grain is still too soft to harvest.

- **Stem and Leaf Dryness:** Check the dryness of the stems and leaves. If they are still green, the crop may not be fully mature. The stems should be dry enough to break easily, indicating that the plant has stopped supplying moisture to the kernels.

### Pest and Disease Monitoring

- **Pest Infestations:** Monitor for pests such as aphids, armyworms, or grasshoppers, which can damage the crop and affect the yield. If an infestation is detected, consider whether it's severe enough to warrant early harvesting to save the crop.
- **Disease Presence:** Look for signs of fungal diseases like rust or mildew. While some diseases might not severely impact yield, others could require immediate action. If disease pressure is high, you might need to consider harvesting earlier than planned.

### Field variability

- **Assessing Variability:** In larger fields or fields with varying soil types, maturity might not be uniform. Some areas might mature faster than others, requiring selective harvesting or adjustments in equipment settings.
- **Dividing the Field:** If there is significant variability in crop maturity across a field, consider dividing the field into sections and harvesting them at different times to ensure each part is harvested at its peak.

## 2. EQUIPMENT CHECK AND MAINTENANCE

- **Combine Harvester:** Ensure the combine harvester is in top condition. Check for any worn parts, clean the machine, and lubricate moving parts if using your own combine. For those hiring or waiting for government programs make sure you have made a plan in time and your name is on the waiting list to avoid disappointment.
- **Tractors and Trailers:** Ensure tractors and trailers are serviced, tires are in good condition, and hydraulic systems are functioning properly. If hiring, make sure you have right size trailers and tractors that are suitable for your field clearance.

### Grain Storage Facilities Preparation

- **Silos and Grain Bins:**
- **Cleaning:** Clean the inside of the

grain bins thoroughly to remove any old grain, dust, or mould. This helps prevent contamination of the new harvest.

- **Inspection for Structural Integrity:** Check for any cracks, leaks, or signs of rust in the grain bins. Repair any damages to prevent moisture infiltration or pest entry.
- **Aeration Systems:** Test the aeration fans and ducts to ensure they are working properly. Adequate ventilation is crucial to maintaining grain quality during storage, if you don't have automated storage just improve ventilation and discourage moisture in your temporary storage (can be a room at the farm)

### Grain Dryers

- **Operational Check:** Run a full operational test on the grain dryer to ensure it is functioning correctly. Clean the dryer to remove any residual material from previous use.
- **Calibration:** Calibrate the temperature and moisture settings according to the specific needs of the wheat being harvested. *(this is for farmers with advanced storages spaces)*
- **Moisture Metres:** Calibrate your moisture meter to ensure accurate readings, as moisture levels are critical during harvesting.

## 3. LABOUR AND LOGISTICS

**Labour Management:** Arrange for sufficient labour during the harvest period. Consider whether you need additional hands for operating machinery, loading trucks, or managing storage.

**Transportation:** Plan the logistics of moving harvested grain from the field to storage or sale. Ensure there's enough transport available and routes are clear.

## 4. WEATHER

**Weather Forecasts:** Keep an eye on the weather forecasts as harvest approaches. Rain can delay harvesting and affect grain quality, so aim to harvest during dry conditions.

- **Contingency Planning:** Have a plan in case of unexpected weather changes, including knowing where to store grain temporarily if needed.
- **Dry Weather:** Harvesting during a dry spell is ideal, as it reduces the risk of grain spoilage and minimises

the need for drying. Check long-term weather forecasts to plan the best time for harvesting.

- **Wet Weather Risks:** Rain before or during harvesting can lead to issues such as sprouting in the head, which can reduce grain quality. If rain is forecasted, it might be necessary to harvest slightly earlier to avoid this risk, even if moisture content is still slightly high.
- **Temperature Monitoring:** Hot, dry weather can accelerate the drying process, making it important to monitor the field more frequently. Conversely, cooler, wet conditions can delay harvest readiness.

## 5. SAFETY MEASURES

**Personal Protective Equipment (PPE):** Ensure all workers have the necessary PPE, such as gloves, masks, and eye protection.

**First Aid:** Keep a first aid kit handy and ensure workers know basic first aid procedures.

**Safety Training:** Brief all workers on the safe operation of machinery and emergency procedures.

It would be sad for injuries to happen during the harvest period, as it tends to be busy and lots of accidents may happen.

## 6. DOCUMENTATION AND COMPLIANCE

**Record Keeping:** Keep detailed records of your wheat crop, including planting dates, growth stages, and anticipated yield. This data is crucial for planning and financial management. Most Zimbabwean farmers lack in this area, treat your operations like a normal business.

**Regulatory Compliance:** Ensure

compliance with local regulations regarding harvesting and storage. This might include permits, environmental regulations, or safety standards. Ensure you have proper paperwork from GMB for travel, delivery and depots.

## 7. COMMUNICATION

**Coordination:** Maintain clear communication with all team members involved in the harvest. Use radios or mobile phones for quick updates and instructions.

**Supply Chain:** Stay in touch with buyers, cooperatives, or grain elevators to coordinate delivery times and avoid bottlenecks.

## 8. FINANCIAL PLANNING

**Budgeting:** Have a budget in place for any unexpected costs during the harvest, such as repairs or additional labour.

**Market Prices:** Monitor wheat prices and decide on the best time to sell your grain. Consider contracts or futures if market conditions are favourable.

By preparing thoroughly in these areas, a farmer can ensure a smoother, more efficient wheat harvest this season.



# Quelea bird control – the strategies

**Quelea birds are the most devastating avian pests for traditional grains (sorghum and millets), winter wheat and occasionally maize grown by farmers in Zimbabwe.**

Wheat planted this 2024 winter season exceeded the target of 120 000 ha of land under wheat production. In light of the large hectareage under wheat, the biggest threat to realising the expected yields is the devastating impact of quelea birds that can cause yield losses of up to 95% percent if not controlled. The Migratory Pests Control Department under the Ministry of Lands, Agriculture, Fisheries, Water and Rural Development conducts que-

lea controls throughout the year in partnership with Problem Bird Control Unit in the Ministry of Environment, Climate and Wildlife. The department conducted successful quelea controls during breeding season early this year. Breeding sites controlled included Malilangwe, Gonarezhou, Plumtree, Ramokgwebane, Mangwe, Hobodo, Matesti, Manapools, Pandamatenga and Hwange amongst other sites. Controls in breeding sites were done so as to reduce quelea impact on traditional grains and at the same time, reducing the potential populations that would impact negatively on the current winter wheat. For identification, the quelea males

have a characteristic red beak as shown below (Fig. A) with bluish eggs (Fig. B)

Females have pink beaks. The birds construct nests in one locality with each nest having 2-3 eggs on average while each female can mate two to four times in a breeding season.

Any breeding site is characterised by heavy bird droppings Fig. E. and this can also be visible for all roosting sites during the winter wheat season.

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Fig. B. Quelea eggs bluish in colour



Fig. C and D. Quelea breeding site with several nests



Fig A. Red beaks in male quelea



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The Zimbabwe National Water Authority (ZINWA) congratulates **His Excellency, Cde Emmerson Dambudzo Mnangagwa** on his assumption of office as the **Chairperson of the Southern Africa Development Community (SADC).**

A firm believer in the unity, cooperation, integration and industrialization of the regional block, we have all the faith the **President Mnangagwa** will ably steer the ship on a firm path of regional prosperity.

ZINWA wishes the President everything well in his new role.

**Makorokoto | Congratulations | Amhlophe**

## Editor's Note



**IT'S** that time again when we transition from winter to spring, then the big one — SUMMER. You will appreciate that this period of changing is never a simple thing for you on the farm. I bet most of you would find it rather so much easier to stay in summer doing that you love most — producing and producing before you harvest and enjoy the fruits of your toil, then the money.

I know spring comes with a lot of demands for you. There is the newly springing vegetation to entice your livestock to wander into the wilderness if you do free range and have no paddocks. I know you will also enjoy the fresh aroma of the budding leaves and flowers when you go after the foraging livestock units. There is also the orchard to resurrect from the cold weather and the chickens to keep fed and healthy.

You must also not forget the labour involved in making sure the stocked crop residues and other edible materials are now given to the livestock to ensure they retain their good condition until the rains come back and resuscitate pastures. To me this is the most taxing period of the year, as most of the shallow water sources would have dried up and livestock units such as cattle have to be driven for distances to get water.

In the country's arid regions, farmers are undoubtedly busy with relief grazing. Yes, they will take their cattle to areas where there is still some grass and vegetation and stay put until the onset of the rains to make sure they have draft power animals in good shape for tillage activities.

I must hasten to say that this is also the time you can scout for replacements for your ageing span of oxen so that you start the season with energetic steers that will not give you problems. It is also the time to train your rookie steers to adjust to working under the yoke while those implements that would have found the going tough during summer should either be replaced or rehabilitated for the better.

The dry season is also the time you should be gathering your inputs for the season and making sure your boundary fences are in good shape lest your crops for the next term will be sitting ducks for marauding stray animals that do not stop at anything they find in their path. Let me also remind you that the stocked feeds should be monitored for safety and must not be where they are easily accessed by passing animals. They should also be protected from veld fires that have become a common problem in recent times.

**Till we meet again. Enjoy!!!**



Fruit and vegetable processing plant

# Keeping it fresh: How post-harvest innovations transform food supply chains



Desire Tavengwa

**POST-HARVEST technology plays a crucial role in the agricultural supply chain, focusing on reducing waste, maintaining quality, and extending the shelf life of produce from the point of harvest to the consumer.**

This technology encompasses a wide range of practices and innovations in storage, transportation, and packaging, which are essential for addressing global food security and sustainability challenges. As the global population continues to grow, the demand for food increases, making efficient post-harvest management more critical than ever. This essay explores recent innovations in storage, transportation, and packaging that aim to minimize post-harvest losses and maintain the quality of agricultural products.

### Innovations in Storage

Effective storage is essential to prevent post-harvest losses, which can occur due to factors like moisture, temperature, pests, and microbial activity. Traditional storage methods often fall short in preserving quality and preventing spoilage. Recent innovations focus on advanced technologies and strategies that enhance storage conditions and prolong the shelf life of perishable goods.

### Controlled Atmosphere Storage

Controlled atmosphere (CA) storage is a technology that adjusts the levels of oxygen, carbon dioxide, and nitrogen in storage environments. By controlling these gases, CA storage slows down the respiration rates of fruits and vegetables, thereby reducing spoilage and extending shelf life. This technology is particularly beneficial for storing apples, pears, and berries, which are sensitive to ethyl-

ene, a natural ripening hormone. By lowering oxygen levels and increasing carbon dioxide, CA storage inhibits ethylene production, delaying ripening and decay.

### Modified Atmosphere Packaging

Modified atmosphere packaging (MAP) involves altering the gas composition inside packaging to extend the shelf life of fresh produce. This technique reduces the oxygen concentration and increases carbon dioxide levels, similar to CA storage, but is applied at the packaging level. Recent innovations in MAP include the development of biodegradable and smart packaging materials that can dynamically adjust gas permeability based on the storage environment. This helps maintain optimal conditions and reduces the need for chemical preservatives.

### Cold Chain Management

Cold chain management involves maintaining a consistent low-temperature environment from harvest to consumption. Innovations in refrigeration technology, such as solar-powered cold storage units and advanced insulation materials, have improved the efficiency and accessibility of cold chains, particularly in remote or underdeveloped regions. These advancements help reduce food spoilage and waste by keeping perishable goods fresh throughout the supply chain.

### Innovations in Transportation

Transportation is a critical component of the post-harvest supply chain, where delays, poor handling, and inadequate conditions can lead to significant losses. Innovations in transportation technology aim to optimize logistics, reduce transit time,

and maintain product quality during transit.

### IoT and Sensor Technology

The Internet of Things (IoT) and sensor technology have revolutionised the way perishable goods are transported. IoT devices embedded in transportation containers can monitor and transmit real-time data on temperature, humidity, and gas levels. This allows for proactive management of environmental conditions and immediate corrective actions if deviations occur. For instance, if a shipment of fresh produce is exposed to high temperatures, IoT sensors can alert logistics teams to adjust conditions or reroute the shipment to prevent spoilage.

### Advanced Logistics and Routing Algorithms

Advanced logistics and routing algorithms optimise the transportation process by determining the most efficient routes and schedules. These algorithms consider factors such as traffic, weather conditions, and storage requirements to minimise transit time and energy consumption. By optimising transportation routes, these innovations reduce the risk of delays and ensure that produce reaches its destination in optimal condition.

### Eco-Friendly Transportation Solutions

Sustainability is a growing concern in the transportation sector. Eco-friendly transportation solutions, such as electric vehicles and hybrid trucks, are gaining popularity for reducing carbon emissions and fuel consumption. Additionally, innovations in packaging design, such as lightweight and recyclable materials, contribute to reducing the overall environmental footprint of transporting agricultural products.

### Innovations in Packaging

Packaging plays a vital role in protecting produce during storage

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Two main methods used in controlling quelea birds during breeding period are use of Fenthion 640 ULV and harvesting of nestlings. Use of nets in trapping adult quelea birds has also been key in reducing their populations while providing a safe product for consumption (a good source of protein) free of avicides.

Currently, control of quelea in roosting sites identified throughout the country is ongoing with thousands of quelea birds having been killed (Fig. F). Farmers are advised that, besides Government controlling quelea birds in their roosting sites, they can also use bird repellents like Bird Ness or Anthraquinone which is applied on the crop to repel birds.

The department boasts of a large fleet of drones (9), motorised sprayers both vehicle mounted and back-packs (35) for use in the fight against quelea birds. To cope with the anticipated increase in number of quelea outbreak reports, the department recruited 21 Technicians increasing the chances of attending to outbreak reports as they come. In addition to these, the Department has access to aerial spray services should there be large roosting sites identified requiring control in a



Fig. E. Quelea bird droppings.



Fig. F. Quelea birds killed using Fenthion 640 ULV



Fig. G. Quelea bird control at a breeding site in Save Manicaland province.

Farmers are encouraged to report all quelea sightings and roosting places in their areas through these Pest Command Centres. Location by GPS coordinates should also be sent through the groups for mapping and easy of identification while facilitating for logistics.

**For More details Contact - Migratory Pests Control Department on the following numbers: 0242 700143/ 0772 868 804 / 0712 796 353**

short period of time.

The MPC department is also partnering other stakeholders in the use of non-chemical alternatives to Fenthion such as UNDP/PEGARA in areas of working with drones coupled with use of artificial intelligence. Other areas of work include the use of reflectors in bird scaring.

The MPC is looking forward to attend to more areas as the number of quelea bird reports are on the increase

daily. More reports are currently being received from Mashonaland provinces. To enhance quelea reporting, Provincial Pest Command Centres have been created running from Provincial up to ward level. Farmers are encouraged to join these groups so as to enhance pest reporting and response. Each province has an established focal person on migratory pests for assistance as given below:

Province	Focal Person Name	Contact
Matabeleland North	Ms. Zenzele Ndllovu	0771636813
Matabeleland South	Mr. Nyoni Nkululeko	0774144364
Mashonaland West	Mr. Phillip Musona	0772668138
Mashonaland East	Mr. Kanisiyo Gazimbi	0773425439
Mashonaland Central	Mr. Cain Loki	0773509037
Midlands	Mr. Mhonde	0771896300
Manicaland	Ms Eunice Mukundu	0715374212



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Congratulations Makarokoto Amhlophe

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**YOUR EXCELLENCY THE PRESIDENT CDE EMMERSON MNANGAGWA CONGRATULATIONS FOR ASSUMING THE SADC CHAIRMANSHIP**

The Chairman, Board of Directors, CEO, Management and Staff of Printflow (Private) Limited, warmly congratulate you, Your Excellency on assuming the chairmanship of the Southern African Development Community (SADC).

For this significant honour and responsibility bestowed upon you, we share the pride of regional might and are confident that under your astute leadership, SADC will continue to make important strides in advancing regional integration and participation on the Global arena for sustainable economic development, peace and security.

As chairman, your crucial role and ability to steer the SADC's agenda and priorities is undoubted. We have confidence in you as you focus around key areas especially strengthening regional infrastructure, promoting intra-regional trade and investment, addressing the impacts of climate change, and fostering good governance and democratic institutions across the region.


The challenges facing the SADC region are substantial, but with your experience, vision and commitment to regional cooperation, you will remain an invaluable asset in guiding the organisation through this critical period.

Your Excellency, please accept our Congratulations as We wish you every success in your role as SADC Chairman.

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**PUBLIC NOTICE**

**Environmental Impact Assessment for construction of a Filling station at corner First Avenue and Masotsha Ndllovu Way**

Puma Energy (Pvt) Ltd is a Zimbabwean Company that owns and operates several fuel retailing outlets throughout the country. The company now intends to develop a filling station on the Remaining Extent of stand 339 Prospect at the corner of First Avenue and Masotsha Ndllovu Way in Waterfalls.

According to the Environmental Management Act (Cap, 20.27), this development requires that an Environmental Impact Assessment (EIA) be carried out. As such Puma Energy (Pvt) Ltd contracted GM Property Link to conduct the Environmental Impact Assessment study for the project.

This public notice serves to inform all interested and affected stakeholders to submit their views, concerns and comments on the above-mentioned project before **13<sup>th</sup> of September 2024** to:

Mr M Njesera  
 Puma Energy  
 Block 4 Tendeseke Office Park,  
 Harare  
 Cell  
 Amos.Njesera@pumaenergy.com

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Drafts of the Council resolutions and detailed terms and conditions of the repossession will be open for inspection during normal business hours at Council Main Offices at Stand No. 78 Brooks Street, Karoi or Housing Department in Chikangwe sector.

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# NERICA rice: A potential game changer in smallholder agriculture in Zimbabwe

**THE consumption of rice in Zimbabwe is on an upward trend due to lifestyle changes and shifting consumption patterns. Rice consumption now ranks third after maize and wheat. More than 80 percent of the rice that is being consumed is being imported because local production cannot meet demand.**

Due to changing climatic conditions and policies regarding wetland utilisation in Zimbabwe, the production of traditional paddy (lowland) rice has dwindled. New Rice for Africa (NERICA), is an upland rice variety that was developed in the early 1990s and can be grown like wheat.

NERICA varieties are a cross between Asian (*Oryza sativa*) varieties, which are high yielding and African (*Oryza glaberrima*) varieties, which are resilient to adverse production conditions. NERICA

was first introduced in Zimbabwe in 2005 through the Japan International Cooperation Agency. NERICA rice varieties are different from the traditional lowland (paddy) varieties in that they are high yielding, can grow in poor soils, mature 30 – 50 days earlier than traditional varieties and more importantly, are adaptable to growing under evenly distributed rainfall conditions or under irrigation. NERICA rice varieties are resistant to pest and diseases particularly rice blast and yellow mottle virus.

## NERICA rice varieties available in Zimbabwe

Three NERICA rice varieties NERICA 1, 2 and 3 were introduced by the crop Breeding Institute in Zimbabwe and have been evaluated for their growth, performance and adaptability in all the agro-ecological regions

of Zimbabwe. To date, NERICA rice production has been piloted in various smallholder irrigation schemes across Zimbabwe. NERICA 1 is aromatic and an early maturing variety that takes between 98 – 106 days to mature. It grows to an average height of between 95 and 100 cm and has a potential yield of three to four and a half tonnes per hectare. NERICA 3 is a medium maturing variety, which takes 108 to 114 days to mature. It grows to an average height of between 105 and 110 cm, giving an average yield of between four and five tonnes per hectare. NERICA 7 is a late maturing variety, which takes 118 to 125 days to mature. It grows to an average height of 125 to 130 cm and can yield up to five tonnes per hectare.

## Seed rate and sowing depth and climatic requirements for NERICA rice



NERICA 7 at physiological maturity



Field establishment of NERICA rice can be achieved through direct seeding using methods like drilling, dibbling or broadcasting at a seed rate of 50kg/ha. Planting should be done to a depth of 3–4cm. A planting depth of more than 5cm will result in delayed emergence and poor germination, hence low plant populations and thus low crop yields. Maturity is also delayed where the rice crop is sown deeper. Rice is small seeded, therefore to ensure good germination, a fine tilth is required. The optimal temperature for rice production is between 25 and 35°C. Temperatures below or higher negatively affect growth and yield for NERICA rice. A well-distributed annual rainfall of 500 – 1200mm is suitable for NERICA rice production. NERICA rice varieties are drought tolerant and can be grown in summer under sufficient rainfall (where five days' total rainfall is more than 20 mm from sowing to about 90 days) without need for irrigation.

However, good yields are guaranteed with supplementary irrigation to avoid stress during critical growth stages such as at plant emergence, flowering and grain filling. Moisture stress at plant establishment results in poor germination, hence poor crop stand and thus low yields. While moisture stress during flowering results in flower abortion, stress at the grain-filling stage results in unfilled grains, thus reduced rice yield.

## Soil conditions, fertilisation and weed control in NERICA rice production

Rice grows best under slightly acidic to neutral soil conditions (pH 6, 0 to 7, 5). Although, NERICA rice can grow under poor soil fertility conditions, best yields are achieved under moderate to heavy textured soils with a good water holding capacity. The best field position for NERICA rice production should be low lying areas

that can allow water to accumulate. Maintaining soil fertility is important to achieve good yields.

As such, rice mono-cropping is discouraged. Rice can be rotated with leguminous crops like soya bean and cowpeas to enhance soil fertility. A basal fertiliser application rate of 200kg/ha for Compound D is recommended at planting. Nitrogen fertiliser at 100kg/ha is recommended, split applied at 8 and 10 weeks after emergence at the ratio of 50kg/ha for each application after germination. Weed control can be done through mechanical means like hoeing or through use of herbicides. Weeding must be done at least twice at three and six weeks after germination.

## Ratoon Cropping in NERICA rice

Another added advantage of NERICA rice is that it can be ratooned. Ratoon cropping in rice is whereby the mature rice plant is cut 15 to 25cm above the ground during harvesting, leaving a stubble which then re-grows to maturity. The advantages of a ratoon crop are that it saves on establishment costs such as seed, basal fertiliser and planting labour. The ratoon crop also takes a shorter time to mature and yields of one to two tonnes per hectare can be realised within 60 days from the first harvest. As highlighted earlier, rice grows best at temperatures of between 25 and 35°C, hence for a successful ratoon crop, the first planting should be done in September so that the ratoon crop grows before the onset of the cool season.

*Article co-authored by Dr Tariro Gwandu (Head, Agronomy Research Institute), Jane Makoni (Rice Agronomist with Agronomy Research Institute) and Nomusa Chizhande (Rice Breeder with Crop Breeding Institute).*



**ZANU PF**  
ZIMBABWE AFRICAN NATIONAL UNION PATRIOTIC FRONT



**CDE EMMERSON MANGAGWA**  
President and First Secretary

**CONGRATULATORY MESSAGE BY ZANU PF SECRETARY GENERAL CDE DR OBERT MOSES MPOFU TO HIS EXCELLENCY, THE PRESIDENT AND FIRST SECRETARY OF ZANU PF CDE DR EMMERSON DAMBUDZO MNANGAGWA**



The Revolutionary Party ZANU PF, through the length and breadth of its structures namely the Elders Council, Politburo, Central Committee, War Veterans League, Main Wing, Women's and Youth Leagues, expresses profound congratulations to His Excellency, the President and First Secretary of ZANU PF Cde Dr Emmerson Dambudzo Mnangagwa on his appointment as Chairperson of the Southern African Development Community (SADC). This is a feat, which attests to his diplomatic acumen and a reinforcing gesture to his iconic Pan-African statesmanship.

The new task also endorses his diplomatic genius as the mastermind of the Engagement and Re-Engagement Policy. ZANU PF and all its gamut of affiliate groups are also confident that under Zimbabwe's Chairmanship, the SADC region will enjoy unprecedented industrial growth and innovation.

This is against a backdrop of the investment magnetic properties that Zimbabwe has enjoyed under the tried and tested servant leadership of our Head of State and Government, Commander-in-Chief of the Zimbabwe Defence Forces.

His exemplary inclination to inclusive governance, fostering peace and social cohesion enhances the foundational principles of the regional organ. His decades of service to the continent, which dates back to his teenage involvement in the late Dr Kenneth Kaunda-led United National Independence Party (UNIP), will provide a wealth of wisdom to strengthen the core mission and functions of SADC.

ZANU PF also prides itself in the leadership provided by His Excellency President Cde Dr E.D. Mnangagwa towards the successful hosting of the 44<sup>th</sup> Ordinary SADC Heads of State and Government Summit in Harare.

Under his guidance, Zimbabwe continues to be repositioned as a cradle of diplomacy and an iconic tower of innovation and industrialisation.

Sithi Amhlope,  
Makorokoto,  
Congratulations

**PAMBERI NE ZANU PF  
PHAMBILINGE ZANU PF  
FORWARD WITH ZANU PF**

#Nyika Inoavakwa Navona Vaya  
#Iizwe Lakhwa Ngabanikazi Balo



NERICA 1 has a distinguished apex black colour at tip of the grain



NERICA 7 is golden brown with a white caryopsis & no colour at grain tip.





Eddington Gororo

**L**IVESTOCK reproductive performance is a crucial pillar in the strategy to achieve farm goals, particularly viability and sustainability. In this article, we discuss why reproduction is important and explore key performance indicators for reproduction, and their current norms and benchmarks.

**1 Introduction**

Livestock play a crucial role in both rural livelihoods and the national economy. For many communities, cattle are more than just livestock. They represent wealth, insurance, and a source of sustenance, providing beef, milk, drought power and other essential products and services.

Reproduction is the cornerstone for livestock enterprises of any scale and orientation. On commercial farms, where production is mostly intensive or semi-intensive, there is reasonable agreement about optimum reproduction. In smallholder livestock farms, wide variations in production systems and environments mean that optimal reproductive performance is complex to determine. Regardless of farm type and scale, maintaining high reproductive efficiency is particularly critical for sustaining and enhancing the viability of cattle operations.

**2 The value of reproduction**

Livestock reproductive performance is a crucial pillar in the strategy to achieve farm goals. Growth in the size of the herd is related to successful reproduction, supplying more calves for sale or breeding purposes. The animals that a farm grows, sells and use for replacement are direct products of reproduction.

Animals that leave the herd through sales, slaughtering, deaths and culling must

be replaced. Reproduction ensures a steady and adequate supply of replacement heifers and bulls, to maintain or grow herd numbers without relying on buying-in animals.

Reproduction is positively related to economic viability of the enterprise. For instance, farms with better reproductive performance have more animals to sell, improving revenue and cash-flow. In addition, effective reproductive management can minimize costs of replacing non-productive cows, treating reproductive problems and maintaining a larger herd in order to cover-up for poor reproduction.

Genetic improvement of the herd is achieved through reproduction. Large numbers of offspring and shorter generation intervals mean selection pressure can be increased, leading to higher gains in economic traits. Herds with better reproduction efficiency tend to have faster genetic progress in traits such as fertility, growth rates and milk or meat production.

Norms around reproductive performance set the benchmark for what farmers can expect and strive toward, ensuring that their herds remain productive and profitable. By measuring and tracking specific indicators, strengths and weaknesses in the breeding program can be identified and strategies implemented to enhance efficiency. Measurement also helps in benchmarking against others and with national standards, ensuring that one's farm remains competitive and sustainable.

**3 Reproductive performance norms**

Key metrics for reproductive performance in cattle enterprises include age at first calving, conception

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# Reproductive performance norms for beef cattle



**PRESS RELEASE**

**DIASPORA REMITTANCES POLICY CLARIFICATION**

The Reserve Bank of Zimbabwe has noted the circulation of a video on social media whose discussion was focused on strategies for formalization of the informal sector and the resultant concerns from the market regarding misconstrued plans to review the current Diaspora Remittances Policy.

Accordingly, the Reserve Bank wishes to put it on record that there are no plans to introduce a New Diaspora Remittances Policy. In terms of our current Exchange Control regulations, Diaspora remittances are treated as free funds, which recipients can receive in foreign currency and change freely at their instance and preferred licensed agencies, as is the best practice globally. For the record, the diaspora remittances have continuously supported the economy, accounting for 17% of the total foreign currency receipts. Given the importance of remittances in the economy, the Reserve Bank will continue to explore incentives to boost remittance flows and not to hinder such as misconstrued.

The Reserve Bank would like to assure the public and all stakeholders that recipients of diaspora remittances will **NOT** be **FORCED** to change their free funds at the point of collection and at any other time.

**Dr. John Mushayavanhu**  
Governor  
16 August 2024



Obert Chifamba

**H**EY, wait a minute — this is not Cyclone Eline or the notorious Idai that I am talking about here. This is in no way linked to that intense low pressure system that forms over tropical oceans with wind and hurricane force.

It is purely a cattle breeding matter and 'Cyclone' is a Boran bull sired by fabled, pedigreed bull, Picasso of Hurwitz Farming in neighbouring South Africa whose single straw of semen reportedly sells for R88 000.

Cyclone is expected to land in Zimbabwe in exactly three months after he was bought for a whopping R8 million (US\$444 000) by Zimbabwean Boran breeder and cattle rancher Collen Tafireyi at an auction held at Hurwitz Farming.

Prior to this record-shattering feat, Tafireyi's fairy-tale journey began 44 years ago when he was born into a family of three in Njanja under Chivhu district, Mashonaland East.

The father was a painter in the construction industry while his mother was an ordinary house-wife.

Tafireyi vividly remembers his life as a little boy attending St Pauls Primary School in the morning and herding the extended family's cattle in the afternoons, weekends and holidays. He later moved to

# 'Cyclone' landing on Zim shores in three months!



Chideme Secondary School where he stayed just for a year doing Form 1. Tafireyi was to enrol at Unyetu Secondary School for forms 2 to 4.

Upon completing his Ordinary level studies, he joined the great trek to the capital — Harare where he did LCCI at the Career Management Centre and got a marketing diploma. Tafireyi did not end there

but did journalism with CCOSA and IMM with City and Guilds.

Armed with these different qualifications, Tafireyi's working life started with a brief stint as a freelance journalist with the Standard and Independent newspapers and also wrote for a South African based sports publication, Kick-Off.

This did not give him the grat-



CATTLEMEN . . . Tafireyi (right) with South African President Cyril Ramaphosa at his Phala Phala Farm

ification he desired. And with his spirit burning bright with dreams as vast as the starlit sky above him, took his search for fulfilment to neighbouring Botswana. Of course he never imagined that in the midst of the shadows of his struggles, a tale of resilience, courage and unwavering hope was about to unfurl and paint the world in hues of transformation and prosperity.

He spent two years in Botswana working for a mining company. That was between 2001 and 2002. He was into supplying mining equipment but as fate would have it, he failed to secure a worker's permit so he had to retrace his footsteps back to his native Zimbabwe.

"I secured lodgings in Warren Park where I started a completely different line of trade — printing calendars and diaries supplying different clients. It was during this time that I thought of forming and registering a company. This saw the birth of RENE Minings and Industrials whose core business was and is still to supply underground mining equipment, surface drilling consumables, hard rock drilling tolls, construction equipment, mining and industrial abrasives," Tafireyi observed recently.

Tafireyi remembers that his biggest undoing was his inability to secure start-up capital, which forced him to use a gentleman's agreement to secure contracts for the supply of various equipment requirements to companies.

"All this time, I was running my company from a 'brief case' since I had no offices. Eventually I got an office along Chinhoyi Street in Harare. The office also served as a phone shop with the operator doubling as my secretary as well. This was the turning point in my ambitious push to become an established businessperson, as the numbers of orders suddenly started rising.

"We were making significant revenue and I was always on the

road to South Africa for orders. As business grew I realised there was need for fast movement of orders into the country so I started going by air. Here at home Government's Operation Maguta also opened a big window of opportunity for me after I secured the contract to supply material for the manufacturing of equipment," Tafireyi explained.


Tafireyi continued to supply mining equipment to various mines scattered across the country and by the year 2010, his business was blooming and he was no longer struggling to raise working capital but was even lending to needy businesses.

Fast forward to the Covid-19 era. Tafireyi confesses that the pandemic made him realise the importance of running another business other than supplying mining equipment after some of his trade partners had shut down operations.

"Two friends separately advised me to try cattle ranching but I was not very sure it would be a good idea. I decided to do a research on the feasibility of doing that so I went round looking for good breeds. It was during this fact-finding mission that I made up my mind to try cattle farming. That cattle herder in me re-awakened and the urge to start my own herd was irresistible. I had been saving money for a while so I decided to follow my heart and bought 30 cattle from different commercial breeders.

"I would spend time on Facebook surfing for information on cattle breeders and sellers. My search took me to Mutorashanga where I purchased some Boran breeds from one farmer, Mr Mark Hook. I instantly fell in love with the breed and did more research on it. I stumbled on information about South Africa's Hurwitz Farming, some 250 kilometres from Johannesburg where I also bought four Boran bulls," explained Tafireyi.

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## HAPPY HEROES AND DEFENCE FORCES DAY

The Zimbabwe National Water Authority (ZINWA) joins the nation in commemorating Heroes and Defence Forces Days.

ZINWA greatly cherishes the selfless sacrifices by the gallant sons and daughters of the soil which brought the freedom we all now enjoy.

ZINWA remains committed to the creation of a water secure country and sustainable water resources management, consistent with the values and ideals that those who fought for the hard-won independence espoused.



• From Page 4

and transportation while also serving as a marketing tool to attract consumers. Recent innovations in packaging focus on enhancing sustainability, improving functionality, and maintaining product quality.

**Biodegradable and Edible Packaging**

The demand for sustainable packaging solutions has led to the development of biodegradable and edible packaging materials. These materials are designed to decompose naturally, reducing waste and environmental impact. Biodegradable packaging is often made from plant-based materials such as cornstarch, seaweed, or sugarcane. Edible packaging, on the other hand, is designed to be consumed along with the product, offering a novel way to reduce packaging waste.

**Active and Intelligent Packaging**

Active packaging technologies incorporate substances that interact with the product to extend shelf life. For example, moisture-absorbing materials can prevent mold growth, while oxygen scavengers reduce oxidation. Intelligent packaging, on the other hand, includes sensors or indicators that provide real-time information about the product's freshness and quality. Time-temperature indicators (TTIs) and freshness sensors are examples of intelligent packaging that can help consumers and retailers make informed decisions about product use and disposal.

**Nanotechnology in Packaging**

Nanotechnology is an emerging field that offers promising solutions for enhancing packaging performance. Nanomaterials can be incorporated into packaging to improve barrier properties, antimicrobial activity, and mechanical strength. For instance, silver nanoparticles have been used for their antimicrobial properties, helping to reduce microbial growth and spoilage. Additionally, nanocoatings can create a protective layer on packaging materials, enhancing their resistance to moisture and oxygen.

**Integrated Approaches and Future Directions**

The integration of storage, transportation, and packaging innovations is essential for maximising the benefits of post-harvest technology. Collaborative efforts among researchers, industry stakeholders, and policymakers can drive the development and adoption of these innovations on a global scale.

**Blockchain Technology for Traceability**

Blockchain technology offers a transparent and secure way to track and trace agricultural products throughout the supply chain. By providing a decentralised and tamper-proof record of each transaction, block chain can enhance traceability, reduce fraud, and ensure compliance with quality standards. This technology can also facilitate data sharing among stakeholders, enabling more efficient decision-making and resource allocation.

**Artificial Intelligence and Machine Learning**

Artificial intelligence (AI) and machine learning (ML) algorithms have the potential to revolutionise post-harvest management by analysing large datasets and identifying patterns that can inform decision-making. AI-driven systems can predict

# Keeping it fresh: How post-harvest innovations transform food supply chains

demand, optimise supply chain operations, and enhance quality control processes. For example, machine learning algorithms can analyse sensor data to predict spoilage rates and recommend optimal storage conditions.

**Sustainable Practices and Circular Economy**

Sustainability and the circular economy are key considerations for the future of post-harvest technology. Innovations that reduce waste, energy consumption, and environmental impact are essential for building a more sustainable food system. This includes developing closed-loop systems where waste materials are repurposed or recycled, and resources are used efficiently.

**Challenges and Opportunities**

While innovations in post-harvest technology offer significant benefits, several challenges must be addressed to ensure their widespread adoption and effectiveness.

**Cost and Accessibility**

The initial cost of implementing advanced technologies can be a barrier for small-scale farmers and producers, particularly in developing regions. Ensuring that these innovations are accessible and affordable is essential for achieving global food security goals. Public-private partnerships and government initiatives can play a crucial role in providing financial support and resources to facilitate the adoption of post-harvest technologies.

**Training and Education**

Effective implementation of post-harvest technologies requires adequate training and education for stakeholders across the supply chain. Farmers, transporters, and retailers need to understand how to use and maintain new technologies to maximise their benefits. Training programs and knowledge-sharing platforms can help bridge the gap and empower stakeholders to adopt best practices.

**Regulatory and Standardisation Challenges**

The development and implementation of post-harvest technologies often require compliance with regulatory standards and guidelines. Harmonising these standards across regions can facilitate the global trade of agricultural products and ensure consistent quality and safety. Collaboration among international organisations, governments, and industry associations is necessary to develop and enforce standardized regulations.

**Conclusion**

Innovations in post-harvest technology are transforming the way agricultural products are stored, transported, and packaged. These advancements play a critical role in

reducing food waste, maintaining quality, and ensuring the sustainability of the food supply chain. By leveraging cutting-edge technologies such as IoT, AI, and nanotechnology, stakeholders can enhance post-harvest

management and contribute to global food security. Addressing challenges related to cost, accessibility, and regulation will be essential for realising the full potential of these innovations and building a resilient and sustainable

food system for the future.

*The author is an agronomist with Hurudza Agro-Consultancy 0777605874 / 0717000679*



## MINISTRY OF VETERANS OF THE LIBERATION STRUGGLE AFFAIRS



The SADC Chairperson, His Excellency, the President of the Republic of Zimbabwe Cde. Dr. E. D. Mnangagwa

The Minister of Veterans of the Liberation Struggle Affairs, Hon. Senator Monicah Mavhunga, the Deputy Minister Hon. Senator Headman Moyo, the Chief Director Maj. Gen. (Rtd) Evaristo Dzihwema, the Veterans of the Liberation Struggle Board, Heroes Dependants Assistance Board, and the entire management and staff, extend heartfelt congratulations to you, **Your Excellency, the President of the Republic of Zimbabwe Cde. Dr. E. D. Mnangagwa** on your esteemed assumption of the **Chairmanship of the Southern African Development Community (SADC)** during the 44th Ordinary Summit of Heads of State and Government.

Your ascendancy to this pivotal role under the theme "Promoting Innovation to Unlock Opportunities for Sustained Economic Growth and Development Towards an Industrialized SADC" is testament to your visionary leadership and unwavering dedication to the progress and prosperity of our region. We are confident that your chairmanship will herald a new era of innovation, inclusive economic growth, and industrial development, fostering unity and collaboration among SADC member states as we share common values on nationalism and anti-colonial struggles.

Your commitment to the recognition of heroes and heroines of Liberation Movements in the region has always been an inspiration. We are proud to stand with you as you lead SADC towards a brighter future, embodying the values of resilience, determination, and unity that has defined your leadership. May your tenure as SADC Chairperson be marked by groundbreaking achievements and lasting contributions to the socio-economic advancement of our region.

**CONGRATULATIONS!!  
MAKOROKOTO!! AMHLOPHE!!**

# Reproductive performance norms for beef cattle

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rate, calving rate, calving interval, weaning rate and breeding efficiency, among others.

### 3.1 Age at first calving

The age at first calving (AFC) in beef cattle is an important factor in determining the reproductive efficiency and overall productivity of a herd. Ideally, beef heifers should calve for the first time at around 24-30 months of age. However, this can vary depending on breed, management practices, and environmental conditions. Early calving is important for maximizing lifetime productivity.

### 3.2 Conception rate

Conception rate refers to percentage of cows that become pregnant after being bred each year or after a specified breeding season. High conception rates suggest effective breeding practices, whether through natural or artificial service. Conception

rates typically range from 60% to 90%, depending on factors such as management practices, nutrition, the fertility of cows and bulls, bulling ratios, and overall herd health.

### 3.3 Calving rate

The calving rate (CR) is a key indicator of reproductive efficiency and herd productivity, directly related to the number of cows delivering a live calf relative to number of cows put to the bull. A high CR is indicative of a well-managed herd with favourable conception rates, ability of the cows to carry the pregnancy to term, and higher reproductive health. Calving rates as high as 80-85% is achievable with good management.

### 3.4 Inter-calving period (ICP)

The calving interval or ICP is the period between successive parturitions for a cow. Ideally, this interval should be around 12-14 months. A shorter calving interval indicates that

cows are returning to estrus (heat) and becoming pregnant quickly after giving birth, which is a sign of good reproductive health and efficient farm management.

### 3.5 Weaning rate

The weaning rate is a key measure of reproductive and production efficiency in a beef cattle operation. It measures the number of calves weaned as a percent of cows put to the bull. The difference between calving rate and weaning rate is pre-weaning mortality of calves. A high weaning rate indicates good calf survival and effective management from birth to weaning. It can also be ascribed to good maternal instincts of the cows.

### 3.6 Culling Rate

This metric measures the percentage of cows removed from the herd, often due to poor reproductive performance, health issues, or age. Lower culling rates can indicate good herd



health and reproductive efficiency. If a cow gets pregnant and delivers calves with regularity, there would be no need to cull her.

### 3.7 Breeding Efficiency

The breeding efficiency is a comprehensive KPI that includes the number of calves born per 100 breeding cows per year, taking into account both the calving interval and the calving rate. It provides an overall assessment of how effectively a farm is managing its reproductive program.

### 4 Current norms in Zimbabwe

Reproductive performance norms in Zimbabwe reveal a diverse picture, with significant variation across different farms. While some commercial farms have achieved high levels of efficiency through improved management practices, many smallholder farms face challenges such as prolonged calving intervals, low conception rates, and high calf mortality. These challenges are often exacerbated by economic constraints, limited access to resources, and environmental factors.

Researchers at Chinhoyi University of Technology conducted a survey of over 360 farms in five districts of Mashonaland West Province. Poor reproductive performance, compounded by inbreeding and a critical shortage of bulls were identified as priority intervention areas in cattle production systems. Poor reproductive performance manifested in low calving rates of about 38-40% per year, long intervals between successive calves of 21-24 months, and a high age at first calving of 31-36 months. These poor rates of reproduction

were related to low levels of bull ownership among farming families and low bull to cow ratios in many communities. Only 22% of farms owned a designated breeding bull retained from within their own herd. These findings were corroborated by Ndebele et al. (2007), who reported 32% bull ownership and eight years bull retention in Gwaayi district of Matabeleland.

This was enough evidence of the farmers' assertion that they lacked of access to good quality, affordable breeding bulls. Farmers therefore rely on communal (shared) bulls for breeding. Long retention periods for breeding bulls (>5 years) and cows (9 years) in the herd was also reported. This leads to repeated breeding and subsequently inbreeding and its associated disadvantages.


### 5 Conclusions

Reproduction is critical for the sustainability and viability of a cattle enterprise. Reproductive performance in Zimbabwe is poor, relative to industry standards and benchmarks. When recorded and tracked over time, a number of reproductive performance metrics provide a clear picture of the reproductive efficiency and overall productivity of a cattle operation, guiding management decisions to improve herd performance.


### About the author

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**MINISTRY OF LANDS, AGRICULTURE, FISHERIES, WATER AND RURAL DEVELOPMENT**




ZIMBABWE

## Strategies for fall armyworm management in the 2024-5 Cropping season

The Fall armyworm (FAW) is a major pest of cereals (maize, sorghum and millets) in Zimbabwe and since its first outbreak reports in 2016, the pest has been causing serious crop losses threatening food and nutrition security. The Migratory Pest Control Department and the Research Services Department (Plant Protection Research Institute) have proposed a FAW strategy aimed at reducing the impact of the pest in the 2024/25 farming season. These strategies include but not limited to:

- Insecticide rotation** in the Government PIP programs. The insecticides to be supplied in the pfumvudza package for fall armyworm control should alternate the active ingredients so as to minimise chances of resistance development. Alternative pesticides with a different active ingredient from the ones that have been previously used are strongly recommended for rotation to prevent insecticide resistance development. The possible alternatives can be selected from illustration below.  
**NB. List is not limited to examples shown.**






- Early release/distribution of Pfumvudza inputs allows early planting so that plants "escape" heavy FAW infestation that occur late in the season. The Integrated Pest Management combining **early planting, soil conditioning, mulching, manuring and pest scouting** are key in FAW management - this forms the basis for Pfumvudza.
- Establishment of Early Warning Systems - a system of traps for surveillance of FAW throughout the country. This helps with early detection and early control. All Extension staff and farmers shall be capacitated for effective FAW **scouting** in fields and control using insecticides when at least 20% of the crop is infested.

The mobile application FAMEWS (Fall Armyworm Early Warning System) that collects fall armyworm real time data from the farmer and extension worker shall be promoted. The application will help to collect data and pickup hotspots for informed national management. The reporting system shall also ride on the existing Pest Command Centres already established.

- Extension staff and farmer **training** and **awareness** on FAW management is essential. This will be done by the use of posters, pamphlets and visual aids. Farmer Field Schools will be used to have a group-based learning-by-practise process to promote Integrated FAW Management.
- The use of **seed dressing** with Fortenza Duo should be promoted so as to protect the crop from emergence to about 4 Weeks After Planting when its most vulnerable to attack. Government may procure the seed dressing chemical for distribution to seed houses so that a only Fortenza Duo-treated seed, of farmer's choice, is available. This could be made mandatory.
- Research (Crop Breeding Institute) should provide **tolerant varieties** on the market but this could be long term measure. Local remedies e.g. plant extracts, ash seen to be effective against FAW need to be validated for proper recommendations. Research on alternatives to synthetic insecticides like use of entomopathogens that are naturally in the environment which kill FAW larvae when it comes in contact require further innovations in upscaling and packaging for distribution to farmers.
- Investigations into **resistance development** to insecticides to explain the increasing FAW populations under synthetic insecticide use will be conducted to explain any resistance development.

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Dr Edson Chifamba

# Good Calf Rearing Practices for healthy, profitable calves

**WELL-GROWN dairy heifers are a good investment in the milking herd. To ensure they grow to become productive and efficient dairy cows, their management must be carefully planned and begin the day they are born.**

A well-managed heifer rearing system aims for:

- Good animal performance with minimal disease and mortality.
- Optimum growth rates to achieve target live weights.
- Minimum costs of inputs, such as feed (milk, concentrates and forages), animal health needs (veterinary fees and drugs) and other operating costs (milk-feeding equipment) to achieve well-reared heifers
- Minimum labour requirements.
- Maximum utilization of existing facilities such as sheds for rearing and quality forages for feeding.

The first 3 months are the most expensive period in the life of any dairy cow. During that time, mortality rates are high, up to 10% in many cases. Calves need protection from the extremes of sun, wind and rain no matter what the rearing system. Disease prevention and treatment can be costly during early life.

#### Rearing the milk-fed calf

- With their undeveloped digestive tract, calves require the highest quality and the most easily digestible source of nutrients, namely, whole milk or calf milk replacers.
- Unfortunately, these are also the most expensive feeds. The most effective way of minimising the high feed costs of calf rearing is through early weaning and reduced milk feeding.
- Good calf rearing depends on two major nutritional factors.
- Adequate intake of high-quality colostrum within the first day of life.
- Feeding management to encourage early rumen development.

#### Colostrum feeding

- Calves are born with no immunity against disease. Until they can develop their own natural ability to resist disease, through exposure to the disease organisms in their surroundings, they depend entirely on the passive immunity acquired by drinking colostrum from their dam.
- Colostrum contains the antibodies necessary to transfer immunity onto their calves. It also contains a chemical allowing newborn calves to utilize their own fat reserves to immediately provide additional energy.
- The chances of calves surviving the first few weeks of life are greatly reduced if they do not ingest and absorb colostrum into their blood stream.
- The term colostrum is generally used to describe all the milk produced by cows up to five days after calving, until it is acceptable for use by milk factories. However, a more

correct term for milk produced after the second milking post-calving is transition milk. This milk no longer contains enough of the factors to provide maximum immunity to calves, but still contains other components, which reduce its suitability for milk processing.

#### Recommendations on colostrum feeding

- Farmers to ensure all calves drink from their dam within the first 3–6 hours of life and if not, to provide additional colostrum from its mother or another freshly calved cow.
- Two feedings during the first day, 6–12 hours apart, and each of two litres of good quality colostrum used to be considered sufficient to provide passive immunity, mainly because of concern about the small capacity of the abomasum in newborn calves.
- Remove the calf as soon as possible after birth (within 15 min) and feed it colostrum. This can be via teat, bucket or stomach tube.

#### 3 Q's principles behind colostrum feeding:

- Quality is providing good quality colostrum.
- Quantity is ensuring calves ingest sufficient antibodies.
- Quickly is timing the first feed to ensure efficient absorption of the antibodies into the blood.

#### Colostrum quality

- Colostrum is produced by the pregnant cow up to five weeks before she calves down. If cows are not well managed, colostrum quality could be reduced.
- Good management includes providing a good quality diet for dry cows, ensuring they are in good general health and minimising stresses such as climatic or overcrowding during late pregnancy.
- Older cows will generally produce better quality colostrum, containing more antibodies for those diseases existing on that farm. First-calf heifers are likely to have the lowest levels of antibodies in their colostrum because they have had less exposure to these diseases.
- After their first milking, dairy cows begin to reabsorb the immunity factors back into their udder tissue. For this reason, colostrum from the second milking contains only half the immunity factor content as that from the first milking.
- The protection from the passive immunity passed onto the calf peaks one to two days after effective colostrum transfer and then it declines. By two weeks of age, it has declined enough to increase the calf's susceptibility to bacteria, viruses and other pathogens, before the calf's own immunity increases to an effective level. Therefore, the calf can be quite vulnerable to pathogen invasions coming from dirty

feeding equipment or other sources between 14 and 21 days of age.

#### In summary, the important principles of good colostrum management are:

- Use colostrum from mature cows that produce less than eight litres at their first milking.
- Use only first milking colostrum.

#### Feed four litres to large calves or three litres to smaller calves at first feeding.

- Feed colostrum as soon as possible, at least within the first three hours after birth.
- Do not let calves suckle their dams.

#### Milk feeding the calf

- Provided the calf milk replacer (CMR) is formulated correctly from good quality ingredients and fed according to the instructions, which are usually on the CMR bag, calves can grow equally well when reared on CMR and their rumsens

can develop just as well as they would on a diet of whole milk.

- Calf milk replacer should be fed less frequently than whole milk. Too frequent feeding of too much milk replacer can lead to abomasal-induced milk bloat.

#### A successful early weaning recipe for calf rearing

- The rumen is non-functional in newborn calves; hence, all digestion must take place in the abomasum (or true stomach) and the small intestine. The weaned calf needs a fully functional rumen in order to be well adapted to a forage-based diet. Before weaning, it is important to promote rumen development, so as to avoid growth checks when calves are weaned.
- Rumen development occurs through the digestion or fermentation of feeds (roughages and concentrates) by the rumen microbes.
- Calves should be encouraged to eat solid feeds at an early age, mainly

through limiting their access to milk to four litres/ day. From the first week, small amounts of roughage such as clean straw should be offered in combination with high-quality concentrates specially formulated for rearing calves.

- Fresh forages are not good sources of roughage for milk-fed calves. Such forages contain too little fibre, and their very high-water content prevents high intakes of feed energy in each mouthful. This limits the feed energy available for rapidly growing animals. Until their rumen capacity is larger, young calves just cannot eat enough fresh forage to sustain high growth rates.
- All calves must be given the opportunity to nibble on the straw even though they will eat very little of it. Straw will encourage rumen development rather than provide nutrients.
- Clean drinking water must be available at all times.

To be continued . . .



ZIMBABWE

## MINISTRY OF VETERANS OF THE LIBERATION STRUGGLE AFFAIRS



### HEROES DAY COMMEMORATIONS MESSAGE



The Minister of Veterans of the Liberation Struggle Affairs, Hon. Dr Monicah Mavhunga (Sen) Deputy Min, Hon. Cde. Headman Moyo (Sen), Chief Director, Maj. Gen. (Rtd.) Evaristo Dzihwema, the Veterans of the Liberation Struggle Board, Heroes Dependants Assistance Board, Management and Staff of the Ministry wish to join His Excellency The President of the Republic of Zimbabwe and Commander - in - Chief of the Zimbabwe Defence Forces (ZDF) Cde. Dr. E.D. Mnangagwa, and the Nation in commemorating the 44th Heroes and Zimbabwe Defence Forces Day Celebrations.

The Veterans Community reflect with pride the gruesome journey for attainment of independence, honoring the gallant sons and daughters who sacrificed their lives in different phases of the protracted armed struggle. May we all continue to cherish and safeguard the freedom bestowed upon us by our gallant cadres. Our youths should draw inspiration from the collective effort of liberation war fighters, political activists and Zimbabweans in their diversity to restore our sovereignty and dignity.

Under the stewardship of His Excellency, the President, Cde. Dr. E.D. Mnangagwa, the Second Republic, has made strides in ensuring tangible economic empowerment and provision of statutory entitlements to Veterans of the Liberation Struggle and their dependants, Heroes' dependants and War Victims.

The Ministry remains committed to upholding the dignity and constitutional rights of our esteemed heroes and heroines.

-----Long live our Zimbabwe!!-----

# Tobacco variety selection



Francis Mukoyi

## Introduction

Varieties bred and developed by the Tobacco Research Board can be classified as slow growing, medium growing or fast growing. This relates to the rate at which they germinate, develop, mature and ripen. The tobacco growing regions in Zimbabwe are also classified as fast, medium and slow growing (Fig 1). Traditionally, we recommend that fast growing varieties be grown in slow growing regions and vice versa. All growers who are in marginal areas indicated on the map are encouraged to grow varieties

that have been placed on limited release in the 2023-24 season.

Figure 1: Tobacco Growing Regions of Zimbabwe

When choosing a tobacco variety, it is vital for growers to identify where they are and whether one falls in a fast, slow, medium and marginal area. In slow ripening areas (High Altitude >1400) growers can grow any variety however, they should avoid late planting of very slow ripening varieties like K RK28 and K RK29. Growers in medium ripening areas (medium altitude > 1200) can choose any variety. For growers in fast ripening areas (low altitude < 1000) growers ought to avoid varieties with KM10 background and any of its derivatives (K RK8, K RK22, K RK23). We recommend that fast growing varieties be grown in slow ripening areas because of the fact that these varieties inherently produce thin leaf and if grown in fast growing

areas, they produce an even thinner leaf which is difficult to cure. In addition to the information above, several factors as outlined below should be considered by tobacco growers when choosing a variety:

### 1. Variety Growth and Ripening Rate

The variety growth and ripening rate is important in placing a variety within the growing regions and also when double cropping is desired. Tobacco varieties vary in their growth and ripening rates (Fig 2). The three varieties shown below were sown on the same day.

Figure 2: Variety growth rates

It is advisable to avoid sowing early slow ripening varieties in slow growing areas but to consider slow ripening varieties in fast-growing areas. In case where double cropping is required, the fast ripening variety should be selected as the irrigated crop while the slow ripening variety is chosen as a dryland crop.

### Classification of varieties by their ripening rate:

- > Very slow ripening varieties — K RK28, K RK29
- > Slow ripening varieties — K RK60, K RK61, K RK62, K RK64, K RK66, K RK71, K RK72, K RK74, K RK75 and K RK76
- > Medium-fast ripening varieties - KM10, K RK8, K RK22, K RK26, K RK26R, K RK27, K RK70 and K RK73
- > Very fast ripening — K RK23, T78, T79, T80, T81

### 2. Desired Cured Leaf Styles

Growers are encouraged to know the styles of cured leaf they desire to produce after curing. Tobacco varieties can be cured into lemon, orange and or mahogany leaf styles and available varieties cure into different cures. The styles of tobacco that are in demand are ripe, open-grained, soft natured flavory tobacco with high proportions of either orange or lemon grades. Varieties that give predominantly lemon to deep lemon cured leaf styles include: K RK26R, K RK73, K RK29, K RK66, K RK72, K RK76, K RK74 while the following varieties will cure into orange to mahogany styles K RK70, K RK75, K RK71.

### 3. Disease Susceptibility

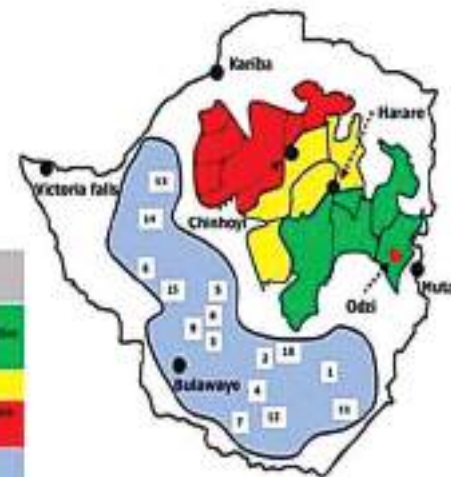
Management of disease is important in preserving the yield and quality of tobacco. Information on particular diseases within a farming area is critical because tobacco varieties have different levels of resistances to certain disease and hence the need to choose varieties which harbor good resistance to particular diseases. In certain areas which are hotspots for particular diseases certain varieties ought to be avoided. (Refer to the disease resistance table in the Tobacco Handbook). All recently released tobacco varieties have enhanced nematodes resistance (double-dose) to mitigate on adverse effects of tobacco monoculture.

### 4. Are you planning an irrigated

## Tobacco growing areas of Zimbabwe

New Council Districts: Masvingo, Midlands & Matabeleland

- |             |                 |
|-------------|-----------------|
| 1. Masvingo | 9. Umtali       |
| 2. Shurugwi | 10. Chimanimani |
| 3. Inyanga  | 11. Zaka        |
| 4. Inyanga  | 12. Zibhebwe    |
| 5. Mhoni    | 13. Gokwe North |
| 6. Lupatse  | 14. Gokwe South |
| 7. Umtali   | 15. Tlovelo     |
| 8. Bvumba   |                 |



Growing areas	Varieties
Slow	All varieties, but avoid late planting of slow ripening varieties (K RK28, K RK29 & K RK71)
Medium	All varieties
Fast	Fast & medium ripening varieties (K RK23, T78, T79, T80, T81)
Slow (Marginal)	T78, T79, T80, T81

Figure 1: Tobacco Growing Regions of Zimbabwe



Figure 2: Variety growth rates




Desired tobacco leaf

### crop?

In principle, if planning for an irrigated and a dryland crop in a season, the variety for the irrigated crop

should ideally be a fast to medium-fast ripening variety. This is to ensure that the irrigated crop can be reaped

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## PUBLIC NOTICE

**Environmental Impact Assessment for construction of a Filling station at corner St Patricks' and Seke roads**

Puma Energy (Pvt) Ltd is a Zimbabwean Company that owns and operates several fuel retailing outlets throughout the country. The company now intends to develop a filling station on the Remaining Extent of Subdivision A of Lot 2 of Lots 1 and 2 of Hatfield Estate which is located at the corner of ST Patricks and Seke roads in Hatfield.

According to the Environmental Management Act (Cap, 20.27), this development requires that an Environmental Impact Assessment (EIA) be carried out. As such Puma Energy (Pvt) Ltd contracted GM Property Link to conduct the Environmental Impact Assessment study for the project.

This public notice serves to inform all interested and affected stakeholders to submit their views, concerns and comments on the above-mentioned project before **13<sup>th</sup> September 2024 to:**

<p><b>Mr Amos Njesera</b> Puma Energy Block 4 Tendeseka Office Park, Harare</p> <p>Cell Amos.Njesera@pumaenergy.com Cell: +263 772 916 554</p> <p>Emails: munyardzim@gmail.com Consult@gmproperty.co.zw</p>	<p><b>Mr. Mapurisa</b> G.M. Property Link (Pvt)Ltd Number 231 Enterprise Road Harare</p>
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Dee:di6654286

# Tobacco variety selection

• From Page 14

and cured before reaping commences for the dryland crop i.e. to avoid clashes of the crops for barn and grading space.

The following varieties are suitable for production as irrigated crops in addition to production as dryland crops: K RK22, K RK23, K RK26R, K RK27, K RK70 and K RK73. Kutsaga varieties can be grown as irrigated crops in double cropping systems provided you have adequate curing facilities. In the absence of adequate curing facilities, ideal varieties for an irrigated crop should have:

- a. Quick germination
- b. Fast speed to topping
- c. Medium-fast ripening d High holding capacity

For dryland cropping, the ideal variety ought to match the yield target and cured leaf style and for best yields early planting is encouraged. Consider and choose slow to very slow ripening varieties. Dryland crops ought to be fertilized optimally (according to fertiliser recommendations).

### 5. Are you on Heavy Soils?

Tobacco grows best in light sandy to sandy-loam soils. However, tobacco can also be successfully produced in heavy soils but with relatively low rates of Nitrogen as recommended (after soil testing). Hence all varieties can be grown on heavy soils but relatively low rates of Nitrogen are recommended.

Nitrogen fertilization must not be done late as this negatively affects the quality of the cured leaf. It is not advisable to under/over-fertilize to attain a desired leaf style/quality. This results in harvesting problems, curing leaf disorders and

a chemically imbalanced cured leaf (nicotine, reducing sugars, starch, total protein) with harsh smoking parameters.

### 6. What is your yield target?

When well managed all the varieties give high yields. Early planting always guarantees high yields and slow varieties such as K RK29, K RK66, K RK74, K RK75 and K RK76 can give yields of > 5000 kg/ha when WELL MANAGED. Fast to medium-fast ripening varieties such as K RK22, K RK23, K K26R, K RK70 and K RK73 can give yields of ≥ 4000 kg/ha K RK70 and K RK73 out yields K RK26R in most seasons

### Conclusion

The Tobacco Research Board has a vibrant and live breeding programme that ensures varieties developed address emerging challenges (climate change, new pests/pathogens, WHO FCTC). The current genetics (varieties) are stable for yield, quality, disease resistances. This is despite the fact that the national average remains low (800 — 1200kg/ha) and this can be attributed to non-adherence to good agricultural practices. A good variety is not a substitute for poor management.

All varieties require the best management practices to harness the full genetic potential of the variety.

In addition to this, all tobacco growers



should also appreciate that a good variety may be affected by extreme weather in some seasons even when management is good!!

Growers are encouraged to contact the Plant Breeders at the Tobacco Research Board, Kutsaga should they require more information on variety agronomic attributes including disease resistances and management of dis-

eases they should contact the Genetics, Biotechnology and Bioinnovations Division on +263868800604 or Cell number: 0719004420 or WhatsApp # 0714980980 or email: fmukoyi@kutsaga.co.zw or; kutsaga@kutsaga.co.zw or visit our website at www.kutsaga.co.zw or get in touch on the following social media handles:

## 'Cyclone' landing on Zim shores in three months!

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This was the beginning of his flirtation with the Boran breed and befittingly, he formed a cattle company — Sinyo Boran in 2021. His intentions were to start his own Boran breeding project. Using the money being generated by his mining company in South Africa, Tafireyi decided to buy more Boran cattle for which he is renting a piece of land at Hurwitz Farming and plans to bring them home soon.

“My biggest problem at the moment is that I do not have a farm here in Zimbabwe. I am renting land in Wedza and Charter where I keep some of my cattle. I have since applied for land with the Ministry of Lands, Agriculture, Fisheries, Water and Rural Development and am just praying that I get a positive response,” Tafireyi said.

His biggest wish is to be at the epicentre of the country's cattle industry transformation from just commercial to pure genetics that can generate handsome incomes when farmers sell them.

In 2023, he attended a cattle auction at South African President Cyril Ramaphosa's Phala Phala Farm and bought nine heifers.

Tafireyi now owns 325 pedigree animals (pure Boran) stud animals in Hwedza, another 215 in Charter and 400 in SA. He also has 200 commercial animals (mixed blood) in Hwedza, 300 in Charter and another 300 in SA that are being used as recipients (surrogate mothers) on embryo projects as recipients.

“We have already started tapping semen from Cyclone and expect him to fertilise between 60 and 90 cows from my herd in SA before he comes home. have serviced 200 cows by end of year. Cyclone must sire 200 calves in the next 10 months. I want to be the best Boran breeder in Zimbabwe and on the continent,” said the father of four who is married to Vimbikai Chigeza.



**NATIONAL BAKERS ASSOCIATION OF ZIMBABWE**

## CONGRATULATIONS

The national Bakers Association of Zimbabwe, the apex body that represents all bakeries in Zimbabwe congratulates **His Excellency President Emmerson Dambudzo Mnangagwa** on his appointment as Chairman of the Southern African Development Community (SADC). This marks a significant milestone for Zimbabwe and the entire region. We look forward to the progress and unity his leadership will bring to Southern Africa.



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Bolton Kakava

# Citrus Black Spot a threat to global citrus production

Citrus black spot (CBS) is a fungal disease caused by a fungus *Phyllosticta citricarpa* and is a damaging pathogen on Citrus spp. It occurs in many areas where Citrus is cultivated including Southern Africa. The disease causes external blemishes that make citrus fruit unsuitable for the fresh market.

The severe infections may cause premature fruit drop. The critical period for infection starts at fruit set and lasts for 4–5 months after which fruit becomes resistant. The leaves are susceptible for up to 10 months after development. The fungus remains in a dormant state until the fruit becomes fully grown or mature, disease symptoms produced many months after infection. According to the Centre for Agriculture and Bioscience International, the disease is present in Angola, Botswana, Benin, Egypt, Ghana, Kenya, Mozambique, Namibia, South Africa, Tunisia, Uganda, Zambia and Zimbabwe.

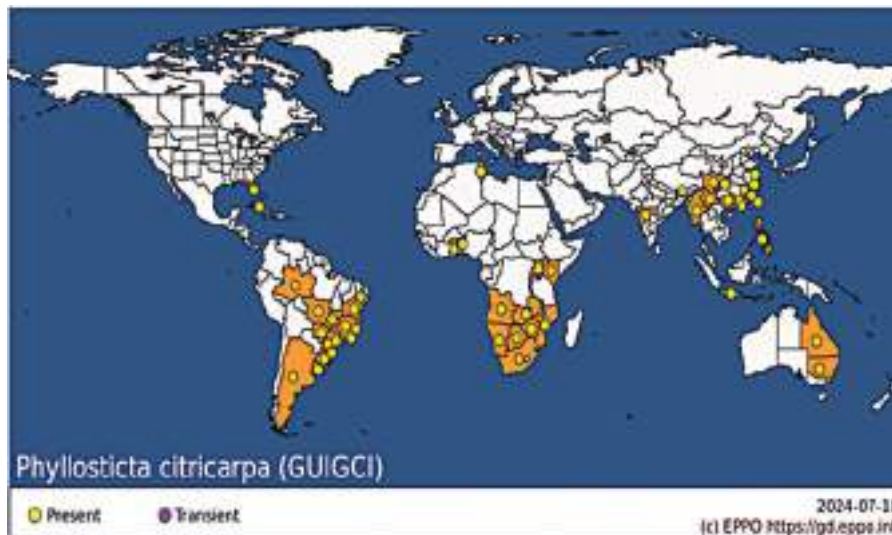
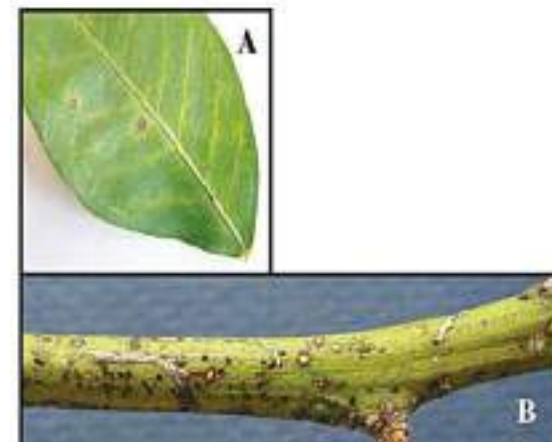


Figure 1: Geographical distribution of *Phyllosticta citricarpa*  
Photo courtesy: European and Mediterranean Plant Protection Organization (EPP0)



Symptoms of citrus black spot caused by *Phyllosticta citricarpa* on lemon (*Citrus limon*) leaves (A) and twigs (B).  
Photos courtesy E. Feichtenberger, Instituto Biológico, Sorocaba, Brazil (A) and M. Truter, Plant Protection Research Institute, Agricultural Research Council, Pretoria, South Africa (B).

## Figure 1: Geographical distribution of *Phyllosticta citricarpa*

CBS leaves fruit speckled and lesioned but does not affect the internal quality of the infected fruit. Many Citrus spp are at risk of citrus black spot, making strict regulation and management necessary to prevent the spread of the disease.

### Symptoms

Symptoms can be found on fruit and leaves. They are easiest to identify during “color break,” when fruit turns from green to ripe coloration. Here’s what to look for:

#### Lesions on leaves

Young lesions are small, round, slightly raised, reddish-brown with light centres and a diffuse yellow halo. Older lesions are sunken, with a gray centre and dark brown margin. Lesions on fruit are diverse and grouped by symptom-based names.

#### Hard spot lesions

This is the most typical symptom of citrus black spot on fruits. They appear as the fruit matures, often around the time of colour change. Look for as circular depressions that are 3 to 10 millimetres in diameter. Lesions have tan to gray centres with a distinct or prominent brick-red to dark brown margin. They develop on the side of the fruit most exposed to sunlight.

#### Figures 2 (above) and 3 (below): Hard spot of citrus black spot.

Photos courtesy of Natalia Peres and Animal and Plant Health Inspection Service (APHIS)

#### False melanose

Symptoms appear as numerous, small lesions that are dark brown, raised, and less than 1 millimeter in diameter. These lesions are much smaller than hard spot lesions. False melanose occurs on green fruit.

Plant parts liable to carry the pest in trade/transport	Pest Stages	Borne internally	Borne externally	Visibility of pest or symptoms
Flowers, Inflorescences, Cones, Calyx	hyphae; spores	Yes	Yes	Pest or symptoms usually visible to the naked eye
Fruits	hyphae; spores	Yes	Yes	Pest or symptoms usually visible to the naked eye
Leaves	hyphae; spores	Yes	Yes	Pest or symptoms usually visible to the naked eye
Stems (above ground), Shoots, Trunks, Branches	hyphae; spores	Yes	Yes	Pest or symptoms usually visible to the naked eye

#### Freckle spot

These lesions are round depressions that are 1 to 3 millimeters in diameter and reddish in color. This type of symptom is considered a sign of a heavy infection. Freckle spot lesions can remain as single lesions or fuse into the virulent spot type of lesion late in the season or during storage.

#### Cracked spot

These lesions are dark, smooth, and variable in size with irregular margins and a cracked surface. They form on green fruit and remain visible on mature fruit. This symptom has only been observed in the Americas and is often found associated with rust mite damage.

#### Virulent spot

These lesions occur on heavily infected mature fruit toward the end of the growing season. They are discolored, sunken, and irregular lesions that cover a large area of the fruit. This symptom is caused by the expansion and/or fusion of other lesions. Virulent spot may accompany premature fruit drop and serious postharvest damage because the lesions may extend into the fleshy part of the fruit.

#### Economic importance

The economic importance of CBS is that the European Union (EU) prohibits the importation of citrus with CBS symptoms. Despite continuous

negotiations, discussions and different opinions between the EU and citrus producing countries regarding the viability and potential occurrence of CBS in Europe, challenges remain. The regulations on CBS have the following economic impact for citrus exporting countries with citrus consignments intercepted:

- Destroying/rerouting of shipments with CBS symptoms
- Plummeted profits (instead of being exported, fruit is sent to local markets or being processed).
- Increased disease control measures

#### Plant trade

#### Table 1: Plant parts liable to carry *Phyllosticta citricarpa*

#### Prevention and control

#### Cultural Practices

- Use uninfected trees from nurseries in black-spot free regions. Infected nursery trees spread the inoculum through infected trees.
- Since ascospores from dead leaves on the orchard floor are the main source of inoculum, any method that removes dead leaves reduces the inoculum
- Mulching the orchard floor with a suitable material such as grass cuttings. Mulching accelerates the decomposition of the leaves bearing the ascocarps, causing a reduction in inoculum. Timing of mulching is extremely important. It should be applied after leaf drop.



Figures 2 (above) and 3 (below): Hard spot of citrus black spot.  
Photos courtesy of Natalia Peres and Animal and Plant Health Inspection Service (APHIS)

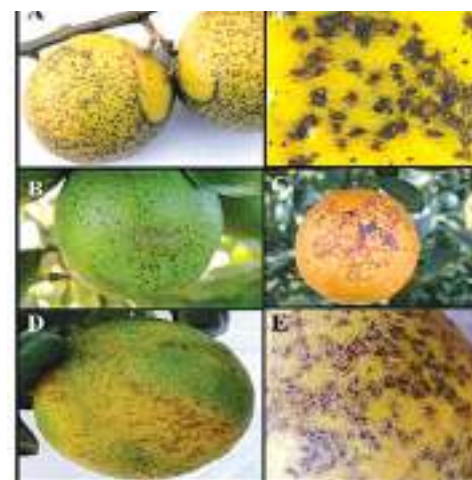


Figure 3: (A) false melanose lesions on mature sweet orange; (a) false melanose lesions surrounded by dark specks on mature sweet orange; (B) false melanose lesions on a green sweet orange; (C) virulent spot lesions on sweet orange (D) lacy spot symptoms on a green sweet orange; (E) cracked spot lesions on sweet orange

- Maintain tree vigor. Trees in poor condition are prone to CBS infection.

#### Exclusion

Exclusion from areas that are free from CBS.

#### Sanitation

The removal of infected, off-season fruit may reduce conidial inoculum.

#### Host-plant resistance

Sour orange (*Citrus aurantium*) is one of the few species of citrus that is resistant to CBS.

**Bolton Kudzai Kakava is a Regulations and Compliance Consultant and can be contacted on +263779579803 or [boltonkudzai@gmail.com](mailto:boltonkudzai@gmail.com)**