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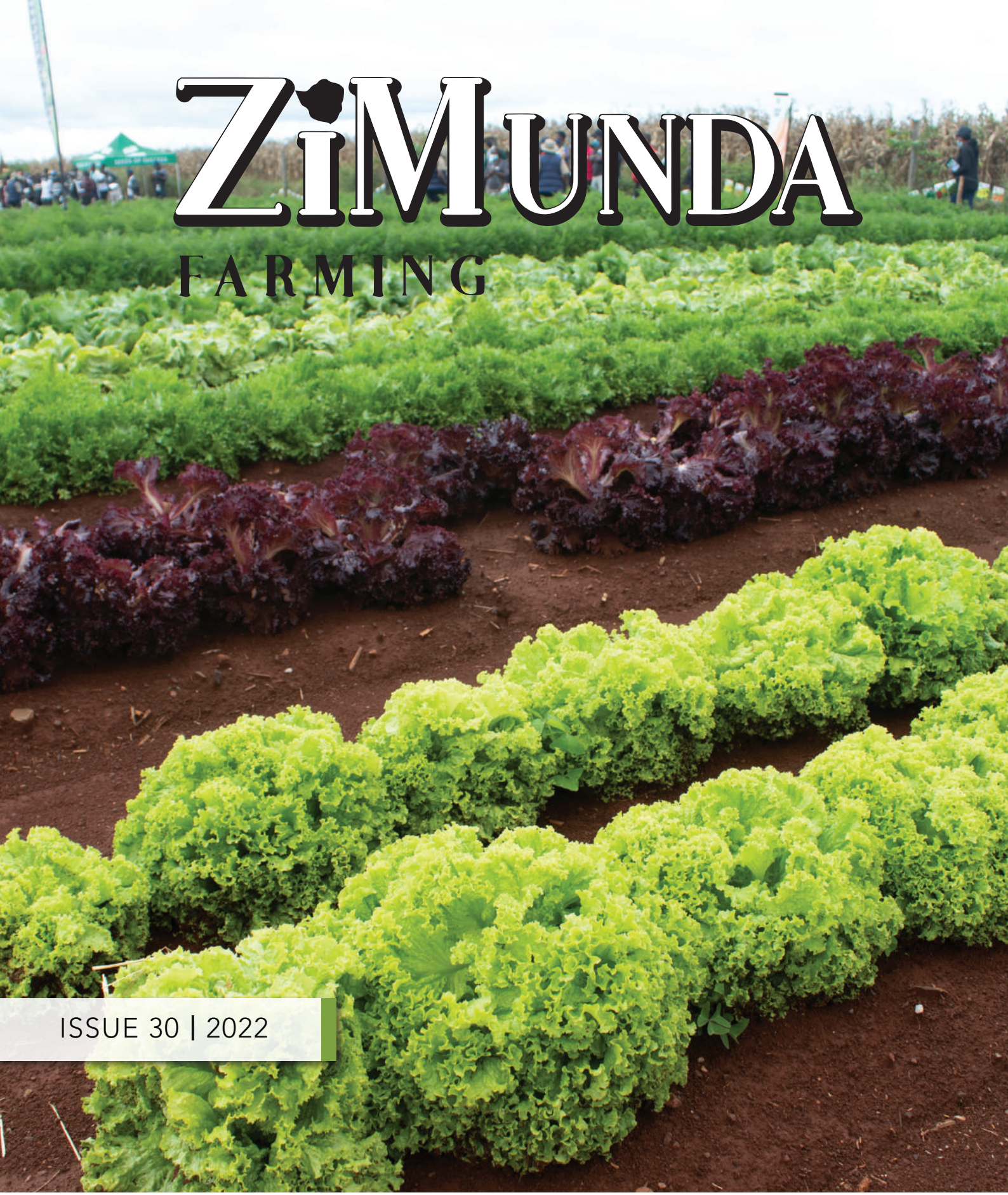

ISSUE 30 | 2022

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Zimbabwean Boran Breeders Association

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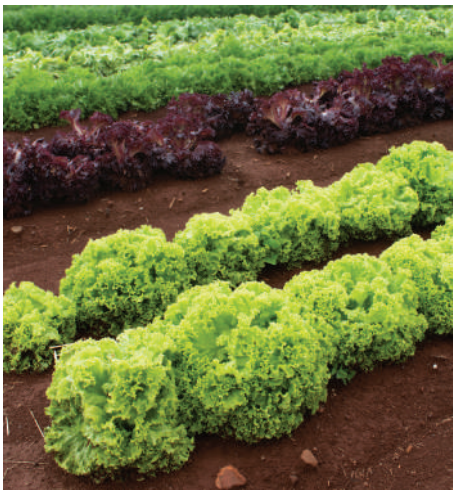

Charter Seeds Trial plots at ART Farm, Pomona

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AGRICO

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Save Energy and Irrigate More Profitably with Agrico Web Control

By Grethe Bestbier, Agrico.

Designed to provide simple yet effective control over your irrigation system, ***Agrico Web Control*** is the ultimate remote irrigation solution. Its state-of-the-art software allows farmers to fully manage and optimise their systems via an app on any internet-enabled device of their choice.

With Agrico advanced RAIN and Agrico Pump Controller you can now integrate centre pivots and pumps on a single app and control your irrigation from anywhere in the world.

The Web Control app can be operated from any smart device.

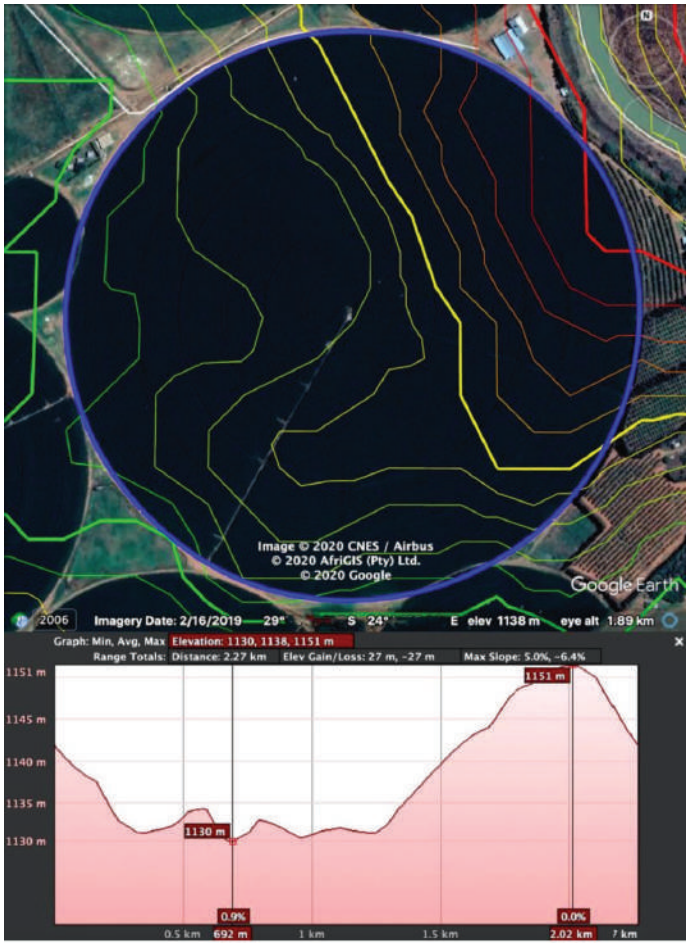
Designed for the twenty-first-century farmer, ***Agrico Advanced RAIN*** automatically controls your centre pivot irrigation according to pressure and can be added to almost any centre pivot. It offers flexible yet robust programming, and:

- Control over centre pivots.
- Configure sectors, triggers and notifications.
- Monitoring of historical data.
- SMS or missed call-notifications of changing status.

The Advanced RAIN panel.

The ***Agrico Pump Controller*** can control any motor starter from a simple electromechanical starter to a sophisticated variable frequency drive (VFD). The system allows you to manage up to nine pumps and closely oversee their performance to get the maximum energy optimisation.

The system is now equipped with an optional GPS positioning and end-pressure control for proven major energy savings. This **Agrico GPS** can be installed on any electrical pivot, with which pivots can be controlled on **Agrico's Web Control.** By controlling pumps according to the specific need of the pivots, heaps of energy is saved.



The graph is a Google image with 2m contours. It shows the height profile on the circumference. It is a real pivot point on a relatively sloping land, with a height difference of more than 21 m between the highest and lowest points, depicted.

The Value of Pressure Control with Agrico GPS Module

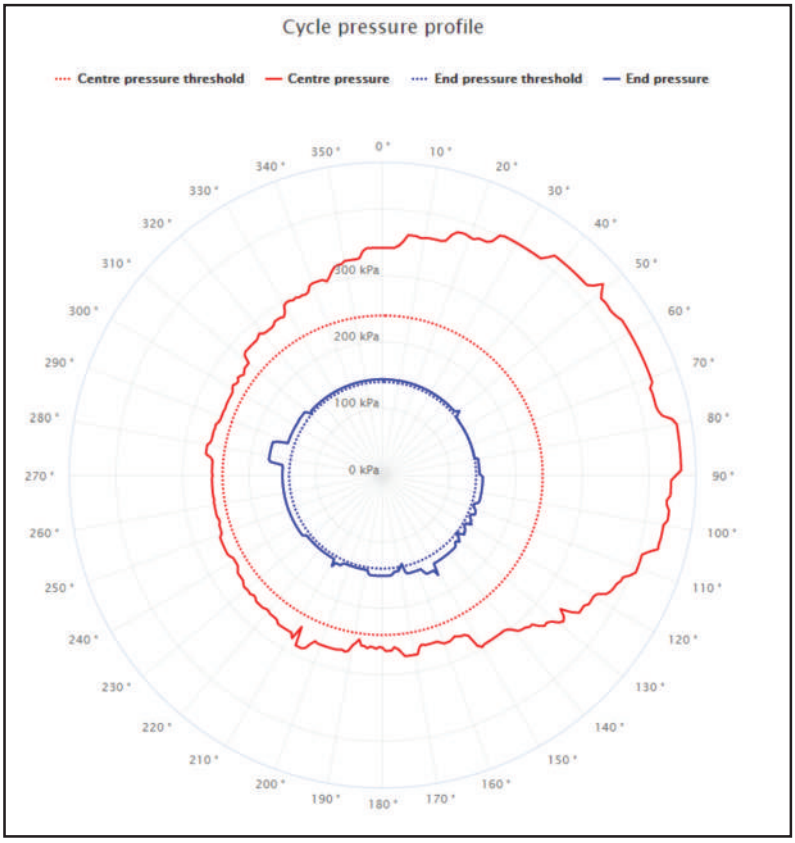
The graph below illustrates how the Agrico system accurately controls the pressure according to the need of the pivot. The spray package requires a minimum pressure of 100 kPa at the end of the machine for correct, uniform irrigation. Traditionally, the irrigation system is designed with a constant

inlet pressure to continuously meet the maximum pressure requirement (at the highest point) - about 450 kPa in this case. However, the pressure at the centre can be varied between about 240 kPa and 450 kPa due to the topography to exactly meet the pressure requirements and save energy.

Since the pressure is controlled not to fall below the threshold values and the spray package is equipped with pressure regulators, the volume of water applied is constant, despite the slope. Power (kW) is the product of pressure (kPa) and flow (l/s). The power required for the pump (s) during irrigation is therefore directly proportional to the pressure applied.

The total energy for one revolution of the pivot is equivalent to the area under the pressure curve. **The energy saving with Agrico's GPS pressure control, for this real case is more than 28%.**

The graph shows how the Agrico control system automatically responds by varying the inlet pressure at the centre (the solid red line) to continuously maintain the required pressure at the end of the machine (the blue dotted line). The actual end pressure is also indicated (solid blue line).



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- Positioning and better accuracy by means of optional GPS.
- Its Web Control utilises the latest user and device authentication to increase security. User rights can be granted individually and complete records of all user actions is kept for audit purposes.
- It increases irrigation efficiency through accurate control.
- It facilitates the operation and management of the irrigation system.
- There is reduced energy consumption and increased profitability.
- Always at your service is a 24/7 technical helpline for support.

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An Agrico pivot fitted with Web Control.

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Borans, Bud Boxes and Building Soils

By the Zimbabwe Boran Breeders Society

On the 10th of November 2021, over 70 Boran enthusiasts gathered at Langton Boran, Roxburgh Farm, Trelawney for a day full of information and the sharing of knowledge.

Mr Mark Myatt-Taylor

On this field day we were delighted to host Mr Mark Myatt-Taylor, of Woragus Boran Stud, Kenya. He has vast experience in farming in Africa, namely Tanzania, Malawi and Kenya. Mark runs a two hundred and sixty stud of Boran cows, thirty stud Santa cows and eight hundred commercial Boran cows that he crosses with Santa's and Simmentals. He fattens about 1,300 steers a year for one of Nairobi's top butcheries. Mark is a Senior Boran Inspector who has judged at several international cattle shows including Brazil, Zambia and South Africa. He has a passion and a wealth of experience for the Boran; therefore, **the Zimbabwe Boran Breeders Society** were very grateful to him for taking the time to visit Zimbabwe to share with us his wealth of knowledge.

AN INTRODUCTION TO THE BORAN BREED AND THEIR POINTS

Mark Myatt-Taylor giving his presentation. Assisted by Mandy Langton.

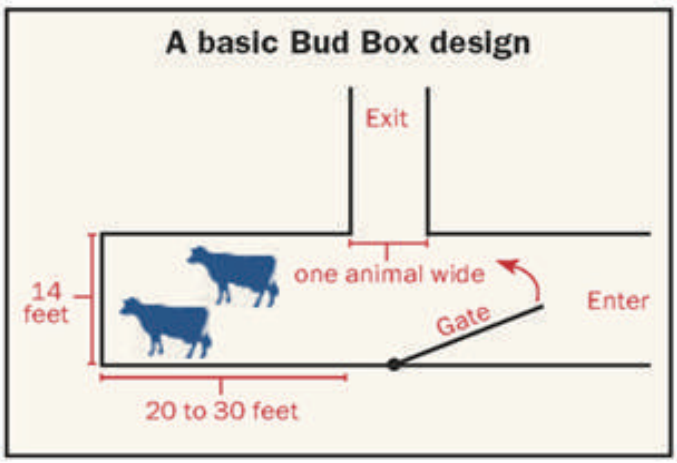
Using an overhead projector, Mark started off the day by giving a presentation on, ***"An Introduction to the Boran Breed of Cattle and their points"***. He went on to give examples of what to look for in a good Boran animal. After the presentation Mark used some of Colin and Mandy Langton's cattle as practical examples to illustrate his points. The Langton's Boran Stud Top Herd sire MC140128, a.k.a Carinus, was rated by Mark as one of the top 10 Boran bulls he's seen in Southern Africa - there truly is no **need to look beyond Zimbabwe for good quality Boran!**

An excellent example of what a Boran bull should look like.

BUD BOX

A bud box system.

Following Marks presentation, Mandy inspired us with a Bud Box demonstration (designed after Bud Williams). It is a very ingenious method which toils on the cattle's psychology to load a cattle race, where the cattle virtually load themselves.



Colin Langton discussing cover crops

BUILDING SOILS

Because Borans are one of the few breeds that have been herded for centuries by man and then locked in small paddocks (Danga) overnight – it makes them ideally suited to integrate the livestock with regenerative farming practices. The breed has a very large gut capacity to utilise poor quality grazing, and yet still fatten off the veld under the harsh conditions. Therefore, incorporating them into Regen farming system is a win-win situation where they show increased weight gain while building the soil.

With this in mind, in the next leg of the day Colin took us to his regenerative pastures where he spoke on how he has been implementing Regen strategies to improve the soils on his farm for the past six years. On this venture, Colin utilises the following five principles of soil health as his tools;

1. Ensure minimal to zero soil disturbance.
2. Keep soil covered with soil armour.
3. Keep roots growing in the soil as long as possible.
4. Increase plant diversity and crop rotations.
5. Integrate livestock (Boran).

The Regen mixture used is made up of Pearl Millet (Mhunga), Forage Sorghum, and Sunhemp ***(Crotalaria Juncea).*** These are the main three constituents for the cover crops at Langton Boran. Because the pastures are in rotation with tobacco, he has to be mindful of species that may host nematodes. Other crops introduced include Saia Oats (Black Oats), Oats, Cowpea (Nyemba), Giant Rhodes Grass and Sunflower. The cover crop is sown directly after the irrigated tobacco crop to maximise the growing season and keep living roots in the soil. The crop (pastures) is then grazed on a supplementary basis to;

1. Grow out the weaners which are weaned early at four months and
2. Grow other young stock who benefit by either being night-camped on the pastures or given a short period to graze daily through the winter.

A balance between grazing and cover crop benefits is achieved employing a controlled Ultra High-Density Grazing (UHDG) system which maximises the benefit to the soil. In practice, the system engages a portable electric mobile paddock technique. The Langton's Boran cattle have thrived under this management regime where they are herded in the veld by day and later on for a few hours or overnight they bring their hooves, mouths and dung to "feed" the soil. A new camp every day aids in keeping parasites at bay for those overnighting.

The field-day ended with a delicious lunch and lots of healthy discussion. Boran breeders left inspired and eager to try out what they had learnt.

For more information on the Boran Breed email the Zimbabwe Boran Breeders Society on boranzimbabwe@gmail.com.

Link backs – Refer to ZiMunda Farming Issue

17 - Regenerative Agriculture by John Wilson.
19 - The Boran Breed - God's Gift to Cattlemen by Vimbai Ruvengo.
20 - Regenerative Agriculture Cover Crops by Sandi Roberts and Regenerative Principles in Cattle and Fodder Crops by Rob Jarvis.
25 – Winter Cover Crops Economics – a case of 100 steers grazed on cover crops, by Hugo Winkfield and Rob Jarvis.
26 - Cover Crops Setting up Tobacco for Success, by Simon Hodgson and Vimbai Ruvengo.

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MATURITY TYPE	Early short day		
MATURITY IN DAYS	190 - 200		
PLANT CHARACTERISTICS	Bulb:	Shape	Deep flat round
		Firmness	Moderate
		Exterior colour	Medium straw
		Interior colour	Cream white

DISEASE TOLERANCE *Pyrenochaeta terrestris*

Onion - Capricio | KKS1402

BOTANICAL NAME	*Allium cepa* L.		
TYPE	Open pollinated		
MATURITY TYPE	Early short day		
MATURITY IN DAYS	190 - 200		
PLANT CHARACTERISTICS	Bulb:	Shape	Deep flat round
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		Exterior colour	Medium straw
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DISEASE TOLERANCE *Pyrenochaeta terrestris*

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To Reap Good Returns, Invest in Good Quality Seed

By the Zimbabwe Seed Trade Association

The potential of crop production starts with good quality seed of the best varieties. Without the right seed other investments, such as labour, good soil fertility, effective pest and disease management as well as high levels of management, may go to waste. Farmers are advised to use good quality certified seed purchased from reliable agro-input stockists or directly from seed companies.

Seed carries ***the genetic makeup*** of the plant, and this determines various attributes such as yield potential, quality of produce, disease resistance, maturity period, plant height, etc. Certain markets demand produces of a given quality which may be due to the genetic make-up, e.g., high-iron beans variety NUA45. Therefore, farmers should get seed of varieties with desirable attributes for the field and market.

Good quality seed should germinate and emerge well when sown under ideal planting conditions. It should be healthy, ***free from seed borne diseases and any insect pests*** which helps the farmer achieve optimum plant populations when recommended spacings are used. Potato is one crop which is most vulnerable to seed borne diseases and pests, and every farmer should get their seed from reputable sources.

Healthy potatoes grown from high-quality potato seeds at Ansellia Farm.

Good quality seed should be pure and thus ***free from all this extraneous matter.*** No farmer would not like to pay for soil dirt, plant residues, broken/ damaged seed, weed seed, other crop seed and any other impurity.

Farmers need to watch out for ***fake seed,*** usually purchased cheaply from unreliable sources. Tell-tell signs include suspicious packaging, spelling errors on the package or label, errors on the seed company logo and even the colour of the dye on the seed. Though cheap, the cost of fake seed lasts a whole season. It may result in loss of yield potential and markets. It threatens national food and nutrition security, quality of produce as well as retard agricultural transformation.

Some farmers opt to retain their produce and use it to plant the next crop and/ or share/exchange with other farmers as seed. Expert advice should be sought if farmers wish to use ***retained produce as seed*** -there is more to seed than the retained grain. Be aware that some produce, if not dried and stored well, will not germinate well. Ask yourself about the seed health - how have seed borne diseases been taken care of? If it is grain from cross-pollinated crops such as maize, sunflower, etc, the seeds variety and variety purity hence its genetic potential will not be guaranteed.

When growing seed, Seed companies ensure that they use ***good parental seed*** and manage the seed crop well such that it is of the highest genetic purity. They provide the necessary fertilisers and other crop inputs so that it will have high germination potential. Some crops, such as groundnut seed, will not germinate well if they do not get critical nutrients. Given the seed companies' expertise and experience the seed crop is harvested, conditioned and processed to ensure it retains its quality. Furthermore, the seed may be treated with seed chemicals to further enhance the quality.

Chemically treated seed ready for summer planting at ART Farm.

Registered seed companies produce and market seed which meets the standards laid down in ***seed regulations*** monitored by the government's Seed Services Institute. Generally, in Zimbabwe seed varieties are commercialised after going through multi-locational adaptability evaluations by researchers in order to give confidence and protection to farmers and consumers. If it is certified seed, the customer is guaranteed of true variety identity and the seed will meet high purity and germination standards which are listed on the seed label. Some companies go a step further and size the seed, this will bring efficiency when machine planting.

At this time of the season as you review your planting operation, you should reflect on the quality of the seed planted. Sharing experiences with fellow farmers on seed quality, will also help in making future plans. ***So, whether planning for the forthcoming winter season or the horticultural production or pasture crop production or the next summer season, use good quality seed produced and marketed by registered seed companies and purchased from a reliable source.***

For more information on seed, please contact the Zimbabwe Seed Association on +263 71 922 5962 or email zsatasec@gmail.com.

Keep farmers farming!

By Damara Bio-Agri

With increasing global fertiliser prices that are unlikely to decrease in the near future it has never been more important for agricultural input companies to innovate in ways that allow farmers to keep farming in times like this.

This is why as a company; Damara has focused on how we can increase fertiliser efficiency that allows farmers to borrow from the soil this year in a time that will be difficult without having a detrimental effect on the seasons to come.

How do we cope with the heavy increases in fertiliser costs without significantly increasing your investment in add on products? This is such an imperative topic which we have focused our innovation around. Two products that we have developed to address these issues are Rootsure SC and MicroCal.

Seed Dressing - Rootsure SC

Rootsure SC is a seed coating that consists of two products, Biocult SC concentrate, and Qwemikelp. Biocult SC contains mycorrhizae, which acts as a biostimulant, and Trichoderma which acts as a biofungicide. Qwemikelp contains Kelp, N, P, K, and micronutrients.

The combination of products provides various benefits. These benefits include improved fertiliser efficiency and uptake, as well as access to nutrients such as immobilised Phosphate, Organic Nitrogen, Sulfur, Zinc, Calcium, Boron, and Copper. This increases soil carbon levels through the production of glomalin resulting in topsoil formation and improved water holding capacity and infiltration as well as increased humus levels, CEC, and porosity over time, resulting in healthier plants that are more resistant to insects and diseases allowing for improved yield, uniformity, and crop quality. Ultimately, the combination is the solution! The greater root mass promoted by the Auxins and the additional nutrients provides the ideal platform for the Mycorrhizae and Trichoderma to develop, the result is a solution that provides maximum benefit of both products to the plant.

Not only does your applied fertiliser operate more efficiently, but the greater root mass established by the crop allows access to more nutrient in the soil which may not need to be supplemented in the form of fertiliser.

Fixing your pH to increase applied fertiliser efficiency

Many arable farming areas are significantly affected by soil acidity which occurs as a result of constant cropping, the leaching of nutrients, and the misuse and overuse of fertilisers. As such, soil acidity severely affects crop productivity. In order to rectify soil acidity, you need to raise the soil pH, of which agricultural lime can be applied. Standard agricultural lime takes up to four months to have an effect in the soil. At Damara we have MicroCal and MicroDol, micronised and granulated calcitic and dolomitic limes that work instantly to correct soil pH.

The benefits of liming are immense, it works to increase nutrients that become available to the plant whilst reducing aluminum and manganese toxicities in the soil allowing for greater plant uptake of the major plant nutrients, as well as adding calcium and (or) magnesium to the soil and significantly improving the soil environment for the beneficial living microorganisms. These microorganisms promote the rapid breakdown of organic materials in the soil, releasing nutrients for optimal crops growth. Furthermore, raising soil pH improves the soils' ability to store water promoting the crops root development. By incorporating a liming regime into your farming operation, either through application with your basal blend, or alternatively as a stand-alone application, you stand to benefit immensely.

We want to keep our farmers farming. For more information or further discussion on how we can mitigate the effect of large fertiliser increases please get in touch on sales@damarabioagri.com or +263 772 334 764

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Production of High-Quality Produce in Very Adverse Conditions

By Charter Seeds, Zimbabwe

Charter Seeds field days are a space for farmers and the horticulture industry to come and see both old and new varieties of crops. On the 15 - 18 of March, 2022 Charter Seeds held their annual field days at ART Farm, Pomona with 234 crop varieties on show. As Starke-Ayre's distributors, Charter Seeds launched new varieties and planned an event filled four days of lectures and plot tours. Over 500 participants came through per day and a team of Charter Seeds Agronomists were present to answer questions.

The theme of the field day was **Production of High-Quality Produce in Very Adverse Conditions** with emphasis on choosing the right variety and creating the right conditions for growth for very difficult conditions, targeting a market which is often short of produce.

VEGETABLES ON SHOW

In the 2021-2022 cropping season Charter seeds planted cucumbers, eggplants, tomatoes, cabbages, lettuce, cauliflower, broccoli, kale, squash, butternuts and summer onions at the trial/demo plot at ART Farm. Adverse conditions continued through the season – the very hot conditions in December affected a number of crops in trials and demo plots, followed up by heavy and continuous rain in January 2022, and finally a fall of cyclonic rain (Ana) on 28 January 2022 deposited close to 100mm rainfall. With these conditions a serious blight from a nearby potato crop seriously affected the tomatoes, although the other crops on the field gave outstanding performances.

Tomatoes – the crop developed a particularly debilitating blight. The 56 varieties were hit by the worst blight seen in over 50 years in the field. The infection was so grave that the field day was nearly cancelled. Every leaf on most plants literally died in 3 – 5 days. Some of the varieties made an amazing subsequent recovery, developing new growth and forming fruit amongst the dead leaves. The determinates which were much younger at the time of the blight, did better than the indeterminates. To facilitate recovery, the spraying program was intensified with a range systemic fungicide but the recovery was also much a feature of variety. Prior to the blight two new bio-stimulants were applied to the crop at regular intervals (before and after transplanting), and the situation will be carefully studied to see exactly what facilitated in the recovery.

Lettuce – at the demo plots there were 8 varieties of lettuce on show including ice-berg varieties, cos lettuces, fancy varieties with frilly margins, and new butter lettuces. The Iceberg lettuce, Thunderhead is an exceptionally quick variety and can be sold after 35 days. This variety is especially interesting to the hotel and tourism business because of its fast growth.

Cabbages - all 13 commercial cabbage varieties on show grew strongly through the wet and rain of January 2022. The wide array of varieties showcased different properties such as large heads and small heads, early maturity and late maturity, red and green, dark green and not so dark. There

were 11 trial varieties on show some of which showed exceptional promises. Downy Mildew (Peronospora destructor) had to be controlled but Diamond Back Moth) posed little threat. Black Rot (Xanthomonas campestis) is endemic at Art Farm but it was not apparent until after head farming.

Broccoli - There were 5 varieties of broccoli being tested in the very adverse conditions, with two transplanting dates. Because of too much rain in January Downy Mildew had to be controlled but there was no Black Rot until after head forming. Like the cabbages, the Brocolli showed the immaculate uniformity of Starke Aryers Brassicas.

Cauliflower – the crop was planted with two planting dates 21 December 2021 and 4 January 2022. Like the cabbages, the cauliflower varieties on show grew right through the January rains. Some of the early planted varieties formed beautiful heads clean and white with good wrapper leaves by 64 days. Some of the varieties displayed signs of Black Rot (Xanthomounous campestris) after head forming.

Pumpkins – the field day had more emphasis on pumpkins compared to previous years with 11 eleven varieties on show. Transplanted early December, the pumpkins showed vigorous early growth and were not much affected by Powdery Mildew or Downy Mildew. Some varieties such as like Star7022, Star7026, and Star 7028 showed exceptional vegetative growth becoming strong vigorous plants. There was a very significant difference between varieties in both disease resistance and final yield. Varieties sown include large whites, medium whites, small whites Hubbards and some very different new small red pumpkins.

Butternut Squash - The 21 butternut squash varieties grown comprised of both warm weather and cool weather cultivars. According to field estimates, the best performances came from the cool weather cultivars. The overall size of fruit was smaller than the enormous weights achieved in the August – December growing period with warm weather cultivars. It appears we need to change varieties at/or about the beginning of December. The degree of resistance to diseases in wet January and the speed of recovery in sunny conditions in February varied enormously from variety to variety. Fruit size, shape and colour were different in each variety. Estimated yields varied between 30T and 50T / ha, less than the 70 – 90T / ha achieved with the same varieties in the August – September plantings.

Summer Onions – There were two varieties of summer onions on show at ART Farm 2022- Goblin and Golda. They were sown at different dates and as transplanted at different dates. The interaction between these two parameters was being studied. Both varieties did well and Charter Seeds learned a lot about sowing and transplanting dates. After assessing the results, we hope to be able to tell our farmers what harvesting dates to expect given sowing and transplanting dates. It is important to note that a magnificent commercial Goblin crop was grown by the Grandincore organisation near Mvurwi. The crop was sowed on 01/08/2021 with 500 560 seedlings being transplanted on 0.75 ha on 02/11/2021 and harvested on 22/02/2022 with the sowing to harvest period of 106 days. The farmers reaped close to 70 tonnes from the field. Other farmers who did well with Goblin in 2021-2022 were Roy Manuel near Harare, Pontea, at Chegutu and Bambilang Estates.

The implementation of field days by seed houses to popularise improved varieties is important since farmers find practical means of accessing varietal and agronomic information.

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Roosture SC – Harnessing the Power of Nature

By Damara Bio-Agri

Increasing costs of fertilisers and dry spells are becoming more common in Zimbabwe. As farmers, we need to understand how best to combat these issues and make sure that we are growing profitable crops throughout the year.

A product that can help with the fast germination, early root development and ease the effect of dry spells, as well as make fertilsers applied become more efficient is called **Rootsure SC.**

Rootsure SC is a combination product containing Biocult SC and Qwemikelp. Biocult SC is a Trichoderma and Mycorrhizae product. It is effective in increasing the root mass of the plant which allows the plant to access more nutrients and water. Qwemikelp is an Ascophyllum kelp product that contains valuable micronutrients that are necessary for your plant growth. **The combination is the solution.** Rootsure helps develop strong early root systems that promote fast germination and strong plants.

ADVANTAGES OF USING ROOTSURE:

1. Mycorrhizae increase the root volume allowing access to more nutrients and water making the plant more tolerant to water stress (helps with drought resistance).
2. Improves the plants uptake of fertilizer and nutrients.
3. Increases photosynthesis and germination, creating stronger, more profitable plants.
4. Reduces the loss of nutrients due to leaching.
5. Improves yield, uniformity, and crop quality.

WHAT FARMERS SAY ABOUT ROOTSURE

- William Madudike, Shangani, Zimbabwe

"I bought my Qwemikelp and Biocult Sc combo last year in August after I could not secure compost to use on my trenches inside the greenhouse for my tomato crop. We normally put compost without fail in those fertility trenches as we know that our crop will need to be sustained for a longer period and fertilisation becomes more and more expensive along the way.

So, when I could not get the compost, I opted to use your Rootsure (Qwemikelp and Biocult Sc) as I felt it would activate a whole world of bio activity in my soil, help nutrient access, phosphorous solubilisation and the likes. I took the liberty to replace compost with Rootsure by spraying it in 3 layers of soil, spraying on layers 10 cm apart in a 30 cm deep trench. I also put my inorganic basal fertiliser and then planted my seedlings.

Three to four months later, the tomatoes are outperforming previous ones I did with compost, they reached peak harvest just after three first harvests.
This is on the background of series of three water stress events due to electricity faults that cumulatively amounted to 21 days of no water. In those water stress days, the plants did not show severe wilting signs even though they were in hot greenhouse in summer. The yield did not reduce on the subsequent harvest and the disease did not rapidly spread.

I always get shocked with every harvest that comes. It beats my expectations."

- Mick Marffy, Mkushi, Zambia

"The root system and sheer ability to withstand a depleted irrigation schedule enabled me to product superior yield from the field where I used Rootsure, compared to the other pivots. Furthermore, I was able to do this using less water. On the strength of these results, I have grown both last years and this year's summer crops using the Damara program, including Rootsure."

APPLICATION

Rootsure can be applied as a seed dressing directly to the seed before planting or it can be applied as a drench after planting.

Available in 1ha packs and user-friendly on a variety of crops, such as tomatoes, maize, and tobacco, Rootsure SC from Damara is the way to go. It is the only way to go.

For more information, please get in touch with us on Sales@damarabioagri.com or call +263 772 334 764 or visit www.damarabioagri.com.

Blue Tick F.A.Qs Fact Sheet

By Coopers Animal Health Zimbabwe

What does blue tick resistance mean?

Resistance is defined as the capacity of blue ticks to endure despite being treated with a specific chemical control substance at a concentration where most of the normal population would have died. It can also be transmitted genetically to the rest of the blue tick population. Dip chemical resistance has been shown to be more evident in single-host ticks (blue ticks) and not multi-host ticks (brown ear ticks, bont ticks, bont-legged ticks).

How does blue tick resistance develop?

Acquired resistance results from a decrease in susceptibility to control measures such as chemicals over time and is passed from generation to generation through a resistance gene developed through mutation. This can be acquired across dips with active ingredients in the same chemical group, e.g. amidines (amitraz or cymiazol), synthetic pyrethroids (deltamethrin or cypermethrin).

It has been noticed that ticks may develop resistance against dips from different chemical groups at the same time e.g. amidine, synthetic pyrethroids and organophosphates at the same time, a phenomenon called multiple resistance. This commonly develops by indiscriminate use of dips with different chemical groups or translocation of cattle carrying ticks.

What diseases are transmitted by Blue ticks?

The African blue tick is a vector of Babesiosis & Anaplasmosis and not Theileriosis (refer to ZiMunda Farming Issue 27).

How long does a generation of blue ticks take?

The engorged female can lay 1 000 to 2 500 eggs within a week to 14 days after dropping from the host, with egg hatch occurring within the next four weeks. The larvae then climb up onto the surrounding vegetation and wait until a host comes closer for them to attach to. Once the larvae have grabbed on to the host , they feed until they are fully engorged. They then moult into a nymph on the host . The nymphs feed on the same host until fully engorged and then moult to an adult tick . The adults will feed until partially engorge and after mating, the female continues feeding until fully engorged. The engorged female tick then drops off the host and lays eggs. This whole process takes up to two months to complete.

How can one manage a case of blue tick resistance?

In the absence of technical advice from a vet (or Coopers Tech Rep or Vet) farmers have been using avermectins such as Bimectin®, Bimectin Plus®, Avotan® (in dairies – zero milk withdrawal is needed with these) or Solution 2.5% LA® as an extra label use and has been seen to be quite effective in controlling blue ticks.

It is however recommended that farmers contact a Vet Officer or the Coopers Vets once they suspect they have a blue tick resistance challenge. The Vet can assist with troubleshooting to find the most suitable dip to use based on a scientific investigation.

NB: it is crucial to note that Avotan, Bimectin, Solution & Bimectin Plus do not control other tick species that are prevalent in Zimbabwe other than blue ticks.

How can one know whether they have a blue tick resistance challenge?

This is usually suspected where ticks do not seem to be kept under control (ticks are not dropping) with a regular dipping program. In most instances farmers increase application rates of dip without any improvement in controlling ticks.

What time of the year do farmers see a lot of blue ticks?

Blue tick populations are predominant between the months of March to end of November.
How does one identify blue ticks?
Contrary to common belief there is nothing blue about these ticks. Stockmen identify these ticks by checking the colour of its feet which is usually slate yellow with no significant body markings.

What is the best dip to use against blue ticks?

There is no best dip against blue ticks as any dip that is overused will ultimately lose strength against blue ticks as they develop resistant genes. There is however the best dipping (rotation) program which is devised on a farm-to-farm basis with the help of veterinary officers and the Coopers Vets.

What dipping chemicals does one get from Coopers?

Coopers is the manufacturer of dips such as Triatix®, Spot-On®, Supadip®, Amitik Dip Pack ®

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Willow Farm Piggery

By Chenayi P Ndiyamba

Starting a farm is complicated because it encompasses so much. In no particular order, one must consider business planning, finding land, securing financing, marketing, production knowledge, securing equipment, developing infrastructure, and pin down a vision for the farm, a product, knowledge and experience. It was no different for me, I had to embark on this exciting yet daunting journey.

THE GENESIS

On the 16th of November, 2016 we received an offer letter of 127 hectares for a farm at Charter Estates in the Chikomba District. To my pleasure, I found out that the farm was located at the border between Wedza and Chikomba District very close to the source of Save River; three streams run through the farm before they join up into a larger stream which flows to Save River. This meant that access to water for use on the farm was not going to be a problem. With this knowledge and land at hand, I had to identify what to farm – according to my preference, weather, landscape (terrain) and geographical location. Having developed a keen interest cultivated by spending time with a friend who runs a successful piggery, I set out to do my initial research through talking to already established farmers, acquiring information from the ministry of agriculture and online. Armed with the outcomes of the research and after weighing my options I was ready to get started on establishing a commercial piggery, thus the concept of Willow Farm Piggery was born.

Piggery

SETTING IN

Success in a piggery requires a sound combination of business management as well as pig husbandry knowledge and skills. Even keeping just a few pigs still requires husbandry skills and attention to infrastructural requirements. Before establishing Willow Farm Piggery, we had to work on the infrastructure. The only infrastructure existing at the farm was the boundary fence around the triangular shaped farm. We spent a good part of 2017 repairing and replacing the aged boundary fences, putting up temporary accommodation facilities, clearing fields and making roads. In addition, we acquired a herd of 12 Boran cows/heifers and a bull for income diversification since an intensive piggery requires high capital to cover buildings, equipment, stock, feed, labour and operating expenses until the first pigs are sold.

A PIGGERY IS BORN

Feeder and feeder mixer

In 2018 all funds, attention and labour where now directed to the setting up the piggeries' infrastructure and others requirements

- Piggery houses - the piggery housing was sited where it was going to be accessible by road and have access to electricity and water.
- Employee accommodation – the piggery needed to employ part- or full-time labour and for it to operate efficiently we needed nearby housing for the staff.
- Staff recruitment and training – we recruited a qualified

manager and send our staff to the Pig Industry Board for training.
• Water reticulation system - a reliable water source is essential for pigs to drink and for housing cleaning. For pigs to drink and for washdown purposes, one would likely need a minimum of 75L per sow a day for baconer production but actual usage can be double this according to housing type and whether it is wet or dry feeding.
• Storerooms.
• Mills - in livestock production ready-mixed feed can be bought from stockfeed millers or milled on the farm from home-grown or purchased grain and protein-rich meals. We opted for growing our own maize, milling it and mixing with premixes and soya.
• Fencing.
• Roads.
• Lighting.

In 2018 we acquired our first litter and foundation stock. It comprised of 10 serviced sows and 2 boers of various breeds. There was duroc, large white and landrace. Willow Farm markets its pigs under the two basic pig sizes:

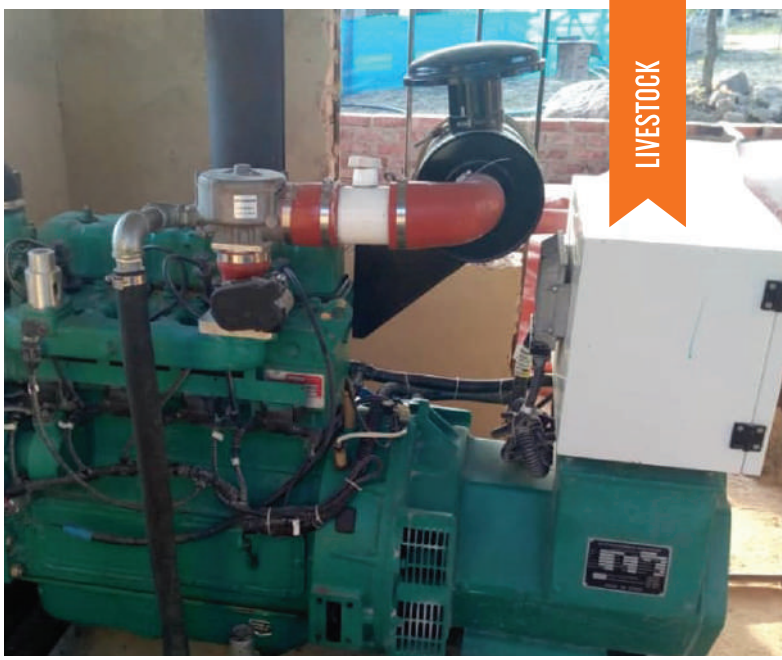
- baconers 50 to 105 kg dressed weight and
- porkers 30 to 50 kg dressed weight.

OUR GROWTH

One of the reasons why pig farming is very lucrative is that pigs multiply really fast. One sow (mature female pig) can furrow (give birth to) on average between 8 and 12 piglets at a time though occasional up to 18 piglets per farrow. The gestation (pregnancy) period for pigs is just 115 days and sows can furrow up to two and half times a year. This means that one sow, can produce up to 20 – 30 piglets in a single year. We started off with 10 sows and through litter and external purchasing our number went up to 20 sows, 50 sows, 86 Sows, 110 sows and eventually 130 sows. With this growth in unit, we needed to optimise our production systems.

OPTIMISATION

In order to optimise our effluent management system, we constructed a ***biogas digester*** where we turn effluent into energy. Normally an adult pig produces around 5kg of manure every day and this waste is 90% water and 7% volatile



solids, which can produce 0.136 cubic meters of biogas daily in a ***bio-gas digester.*** The gas is then converted to energy through the biogas generator and powers up the facilities including heating systems for the piggery.

In order to optimise pig husbandry, we;
• Installed a 100cub feet bio digester to generate gas which is used in heating up the piggery and powering a 20kVa gas generator to meet power requirements on the farm.
• Constructed farrow cages to minimise piglet crushing by the mother when suckling.
• Purchased feed mixing equipment, so as to make consistent ratios of well mixed feed.
• Equipped the piggeries with
- Feeders to avoid spillage losses during feeding and,
- Water reticulation system/nipple drinkers for effective water management.

CHALLENGES AND OPPORTUNITIES

• Access to capital – growth has been organic with own resources.
• High cost of equipment, we have to import some equipment from as far afield as China.
• The cost of feed is significantly high as feed represents the major cost of the operation. There are opportunities in one growing or processing own feeds.
• Price controls in the market. Most of the pigs are sold to established and large abattoirs and producers who generally control the market and pork prices.it is thus important for an upcoming piggery like wise to consider forward interrogation and set up own slaughtering and value addition facilities so as to maximise margins.

One thing we have learnt is that - Starting small and dreaming big is the motto. It allows one to expose only a small amount of capital to the risk of failure as well as to embrace the power of learning on a small scale where one discovers patterns, tricks, things that will work and those that will not work.

Biogas digester, generator tank

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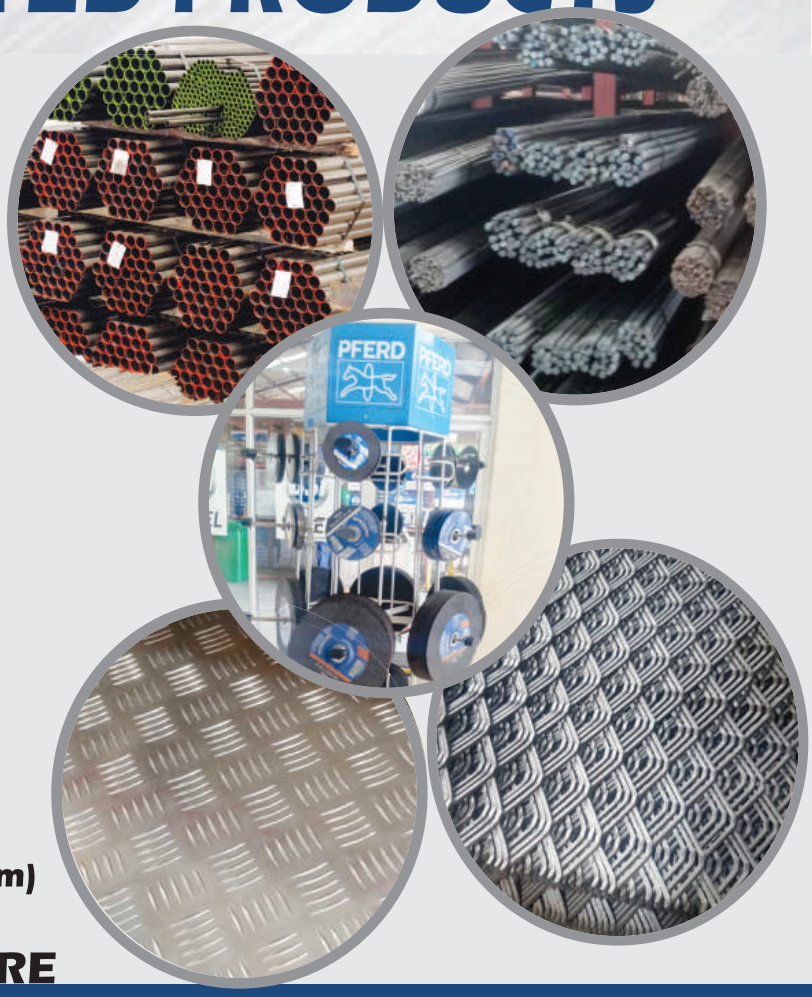
- WELDED MESH
- RAZOR WIRE
- BARBED WIRE
- GALVANISED WIRE
- HIGH STRAIN WIRE
- DIAMOND MESH
- TYING WIRE
- FIELD FENCE
- ANGLES
- LIPPED CHANNELS
- Y& DV STANDARDS
- ALUBUBBLE INSULATION
- DEFORMED BARS
- ROUND BAR & DEFORMED BAR (droppers)
- CHECKER PLATE (steel and aluminium)
- U CHANNELS
- FLAT BARS

...& MANY MORE



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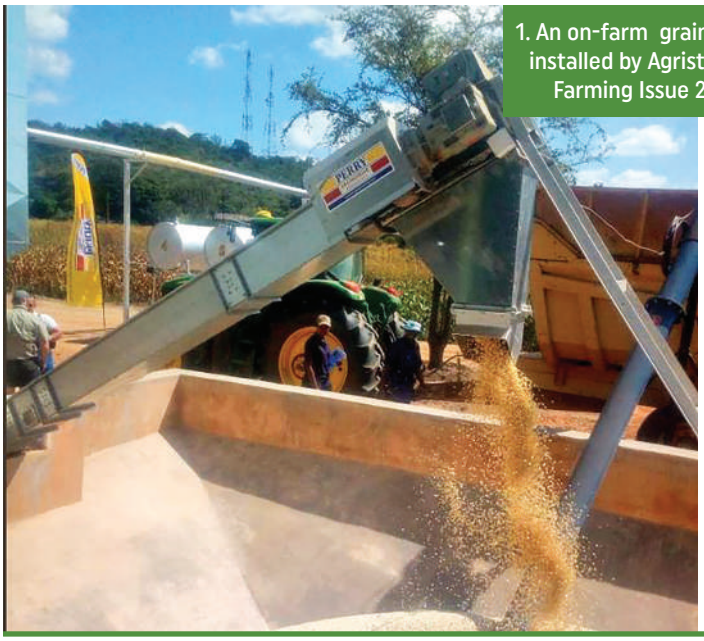

1. An on-farm grain dryer in Lion's Den installed by Agristructures. ZiMunda Farming Issue 2 (print version).

2. Soyabean harvesting and a grain silo at Ansellia Farm, Mazowe. ZiMunda Farming Issue 4.

3. Tobacco harvesting and drying at Nhimbe Fresh, Marondera. ZiMunda Farming Issue 18.