

# ZiMUNDA

## FARMING

NEWSLETTER  
ISSUE 7 | AUGUST 2020

### AGRONOMY

HYDROPONIC  
FARMING  
"160 HYDRO FARM"

### AGRIMARKET

SMALLHOLDER FARMER  
SPECIALISATION KEY FOR  
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# Indigenous Poultry Breeding & Management Techniques

BY BEVEN MUNDIDA

***'To be successful in rearing indigenous chickens, farmers have to exercise a high level of management in breeding their chickens'***

Many poultry farmers assume that indigenous chickens can breed on their own especially when put on free range. But, this is not the case. Indigenous chickens require proper breeding and management techniques for the farmer to rip the benefits of the enterprise. The article focuses on a few important considerations on how farmers can maximise the benefits of indigenous chicken enterprise.

## ***Problems of inbreeding:***

There exist a high probability of inbreeding within poultry farming. Inbreeding is a loosely defined term that refers to breeding chickens that are closely related. Inbreeding causes a lot of problems like stunted growth, reduced egg production, weak offspring's that are prone to diseases and many other abnormalities. Controlled free range management is important to avoid inbreeding. Chickens can be separated into different batches (groups) and only released at different times to avoid mixing and increasing chances of inbreeding. A farmer who wants to succeed in indigenous chicken rearing has to combine both traditional and modern methods of indigenous production.

***Selective breeding:*** Selective breeding is when high quality breeds of hens or cocks with certain qualities (traits) such as high egg and meat production are crossed with a less quality stock. There are three categories of indigenous chicken breeds: light breeds which are good for egg production, Heavy breeds which are good for meat production and mixed breeds which are suitable for both meat and egg production. If farmers want to rear indigenous chickens for egg production, then they cross breed their indigenous chicken breeds with light breeds that have a history of good egg production. If farmers want to push for meat production, they can look for heavy breed(s). Farmers, who want a breed

that is both good for meat and egg production, they can cross-breed their stock with a mixed breed.

***Choosing a breed:*** Experienced breeders go a step further and continue improving their chickens by cross-breeding them with other breeds which have special qualities (traits) such as disease resistance, particular shape, egg size or good feed conversion rates. A criterion or standard allows the choice of the right breed. Any hen or cock between 1kg and 2kg

is classified as light breeds. All hens above 3kg in weight are considered as heavy breeds. Chickens weighing 2kg to 3kg are mixed breeds. A good breeding practice is to ensure that after every breeding cycle, the cock is either replaced, or the whole flock of chickens and eggs is sold off, and a new flock brought in to stop inbreeding.

Allow only one cock for every ten hens. Farmers can also reduce chances of inbreeding by keeping very simple records, for instance in marking breeding cages to ensure they know which chicken are in which cage at particular period.

## ***Importance of record keeping:***

For farmers who want to go into serious business of breeding chickens, record keeping is a must. Records help farmers to trace the lineage of each of their chicken selected for breeding. It is a major way that is helping many farmers to analyse each

of the breeds they have in their flock, including their performance, in terms of egg or meat production.

## ***Livestock consultant***

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*Images provided by Beven Mundida & Melissa Katunga*







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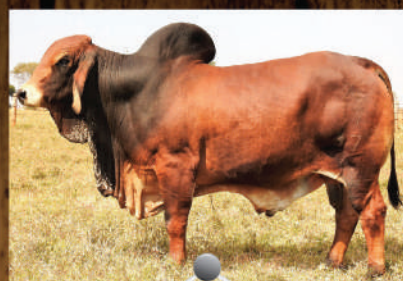
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# Duly's AgriQuip

## Playing its Part in Feeding the Nation

BY RUTENDO CHABURURUKA

**Duly's AgriQuip**, a division of Duly Holdings, is hard at work as an essential service supplier during this Covid-19 lockdown period. Nyaradzai Zingoma from the Duly's AgriQuip team was recently in the Midlands province commissioning a New Holland Tractor 45HP 4X4, 4-row Fieldking planter and tractor drawn plough to a farmer in Mberengwa. The New Holland tractor is a robust tractor suitable for several uses including farming and mining. The miners use it to move dumper trailers. It is compatible with a two-disc plough, 4-row planter, farm trailer and bailers.



Duly's AgriQuip is an agricultural and mining mechanisation partner who also has a wide range of implements and provides after sales support for New Holland tractors and implements parts and accessories. In terms of implements, Duly's AgriQuip holds the reputable Fieldking farming implements franchise, which has among other tractor-drawn implements – harrows, double coil cultivators, rigid cultivators, disc ploughs, sub-soilers and 3-way tipper trailers.

The key farming implements player also has Sfoggia planters imported from Italy. Duly's AgriQuip is part

of Duly Holdings. Duly Holdings is the leading Zimbabwean Motor Company specialising in the retailing and servicing of Ford vehicles, Renault trucks, Nissan cars, Volvo trucks, UD trucks and buses, Higer buses, Eicher trucks and buses, Yutong buses and wide a range of New Holland tractors. Established in

1902, the company is reputed for a sound and stable reputation throughout Zimbabwe for good product, excellent customer after-sales service, fair dealing in the industry and integrity that has held true in over 100 years.

Having a knack for providing an exceptional level of service in the motor industry to valued customers,

Duly Motors opened a dedicated Bulk Parts Department, which subsequently launched the first depot in Harare in 1932, motorists head here for genuine parts, car batteries, car accessories or car care products to keep vehicles in great shape.

Duly's branches are located in Harare, Mutare, Gweru and Bulawayo to enable customers for vehicle sales and aftersales support. Duly's AgriQuip provides farm visits for certain special servicing requirements to ensure productivity on the farm is not compromised.

*Image provided by Duly Holdings*



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# Smallholder Farmer Specialisation Key for Economic Growth

BY TAWANDA MTHINTWA HOVE

Zimbabwe finds itself in need of an agrarian revolution if it is to retain its status of being the breadbasket of southern Africa. Whilst the access to finance and the advent of climate change are valid reason for the slow growth in productivity and viability of smallholder farmers, a lack of specialisation and application of business skills is a major factor why we continue to import food-based commodities which could be homegrown.

## BENEFITS OF SPECIALISATION

One the benefits of specialisation in an economy dominated by small to medium enterprises which smallholder farmers should see themselves as, is that it enables progressive learning such that agricultural output and quality is of the highest order. A classic example is the production of tomatoes, a general warm weather crop. During the period between December and February, Zimbabwe experiences a surge in table tomato production, and it is not surprising to see a heap of rotten tomatoes at Mbare musika, Sakubva, Mukambo (Bulawayo market) or any informal markets in Zimbabwe. This is a result of oversupply of the commodity whereas by the same token, canned tomato paste or puree are commodities which all year round fully stocked in Zimbabwean supermarket shelves but originating from South Africa and other producer nations. This is a classic example of local smallholder farmers not exploiting the opportunities existing to grow the specialized varieties necessary to process tomatoes and sell them to local tomato processors. It is quite evident that local agro-processors such as Sondelani, efoods, Schweppes, Cairns and others would be at advantageous position if there was growth in supply of the processing tomato such that they could raise volumes for input substitution which our country craves if we are to address the forex leakages emanating from an excess of imports and a deficit of exports. It is a well-known that Zimbabwean processed foods at the moment lack the necessary pricing competitive due to the local costs' structures however, farmers would consider a lower selling price, if they were specialised to produce at scale and also would have the guarantee of a market. This is a more

viable option, than to produce and be stranded in securing an off taking market.

## TRADE REPORTS

When one observes the Zimbabwe trade reports from Zimtrade and Zimstat, it is unfortunate to note that commodities such as Potato seed, dry shelled peas and beans were commodities which were imported in huge

volumes 2018 and 2019: a void our smallholder farmers can easily fill. According to the Pan Agrican Bean Research Alliance (PABRA), Zimbabwe in 2018 required 90 000 tonnes of sugar beans and yet the country could only produce a paltry 11000 tonnes allowing exporters from as far as Tanzania to tap into the Zimbabwean market. At the moment, sugar beans is in short supply with processors and traders jostling to get the commodity. If smallholders could as oppose to shifting from commodity to commodity in search for the most lucrative crop, would choose to specialise in a limited range of tradable crops, we would soon see rapid import substitution which in turn could create valuable jobs for our youths.



It is an uninformed notion to say that commercial agriculture at smallholder level is a gamble. Whereas what is required is an alignment of production to existing market opportunities and specialised production which generates the industrial desired quality specifications and the yield outputs which make it economically worthwhile for smallholder farmers to engage in.

**About the author: Tawanda M. Hove is an Agricultural economist, PHD candidate with University of free state and Agriculture Development practitioner.**

*Images provided by Tawanda M. Hove & Melissa Katunga*



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# Hydroponic Agriculture

## Featuring the Venensia Mukarati's "160 Hydro Farm"

BY VIMBAI RUVENGO

This article aims to give some light into hydroponic farming. Hydroponics is a modern technology in agriculture and is setting the tone to be the preferred farming method of the future. It is proving itself over traditional soil-based irrigation farming methods. It can be adopted for large scale intensive farming or on a small scale in our backyard (backyard farming).

Hydroponics, by definition, is a method of growing plants in a soilless water based, nutrient rich solution. The root system can be supported using an inert medium such as perlite, rock wool, clay pellets, peat moss, or vermiculite. Water soluble nutrients are added in and fed to the plants usually by a circulating water pump. The water is collected back into a tank, re-adjusted (pH and nutrients) and sent back to the system.



*(Top) Venensia Mukarati scouting through her cucumber crop*



*(Left) Excess nutrient solution flowing out of the low end of each of the channels draining into another channel, and guided back to the reservoir where it is recirculated through the system again.*

There are different technical systems to choose from depending on one's investment resources and greenhouse space available. This article will focus on the Nutrient Film Technique (NFT), showcasing the "160 Hydro Farm" developed by Venensia Mukarati who has successfully employed this technique in her backyard greenhouse; measuring 44m<sup>2</sup>.

### THE 160 HYDRO FARM

The backyard farm is managed by Venensia Mukarati, an accountant who has always had a passion for farming but with no major farming land space except her backyard. Through web research, Venensia researched on hydroponic farming. With this new acquired knowledge and acting on advice, she

purchased a small hydroponics system and set it up in her 44m<sup>2</sup> greenhouse in her townhouse backyard.

Venensia adopted the NFT system which works by continuously flowing nutrient solutions onto the growing tube pipes. The system does not need a timer for periodic release of the nutrient solution. The solution is pumped from the reservoir into the system, and it runs through the root system of the plants till

it reaches the inclined channels' end then drains back to the reservoir. For her seedling production, Venensia uses biodegradable grow bags and cocopeat as a growing medium for seeds. Coco peat is an organic material created from the coconut shell husk. The plants take 2 weeks in the nursery and then are transferred to the main hydroponic system. It takes six weeks for her to harvest vegetables such as lettuce compared to 10 weeks from crops grown in soil. She is thus able to provide a more regular supply to local clients.

Although her initial objective was to produce fresh vegetables for her family, she quickly realized her pastime

could be a profitable venture. Initially she grew 140 plants per cycle-now she produces 2,600, including microgreens, lettuce, cucumbers, spinach and herbs in







two greenhouses fed by a makeshift system she made using roof gutter pipes with openings made using a chain saw.

### ADVANTAGES OF HYDROPONIC FARMING

**No soils needed** - In a sense, you can grow crops in places where the land is limited, doesn't exist, or is heavily contaminated.

**Make better use of space** - Because all the plants' needs are provided and maintained in a system, one can utilise limited small space.

#### **Effective use of nutrients**

The hydroponic system allows for 100% control of the nutrients that the plants need. The roots are sunk in an oxygenated nutrient solution and are in direct contact with vital minerals. The nutrient solution is locked in a closed water system hence nutrients are conserved in the tank, losses are minimal compared to leaching in soil systems.

#### **Efficient water utilisation**

Studies show that plants grown hydroponically use only about 10% of water compared to soil grown ones. In the NFT method, water is recirculated. Plants will take up the necessary water, and all run-off will be captured and recirculated. Water loss only occurs in two forms - evaporation and leaks from the system.

**Climate control** - Hydroponic systems are set up under greenhouse conditions therefore, as a grower you can have total control over the climate - temperature, humidity and light intensity.

**Labour and time saving** - Because the system is set up under a controlled environment, there are less chances for pests and diseases manifestation hence no labour required for fumigation, tillage, weeding or irrigation.

### IMPORTANT ISSUES TO TAKE NOTE OF;

**pH control of the solution** - It is important to monitor

and control the pH levels so that they stay at optimal levels between 5.5 and 6.5.

**Experiences and technical knowledge** - It is important to note that the technical complexity of setting up the hydroponic system requires expertise and/or some training. The project can fail if the systems are not set up properly and will result in poor plant growth leading to poor yields.

Venensia's 160 Hydro Farm is an example of a successful 'farm' in the backyard. Her determination and success has inspired a number of other successful backyard farmers whom she shared her experiences with and trained. Take a lesson from Venensia; it was out of interest, determination and



(Above) Basil seedlings ready for transplantation on Mukarati's seedlings block

(Top left) Mukarati demonstrating how she regularly checks the nutrient solution's pH by comparing the colour of the reaction mixture with the pH chart

(Bottom left) A reservoir for the nutrient solution

enthusiasm that has made her a successful farmer. She is planning to quadruple current production by constructing commercial greenhouses on the outskirts of Harare.

For more insight on NFT hydroponic farming follow the 160 Hydro Farm Facebook page.

Images provided by Melissa Katunga





## Onion - Capriccio

For both fresh and dry market

**TYPE** Open pollinated

**MATURITY TYPE** Early short day

**MATURITY IN DAYS** 190 - 200

<b>PLANT CHARACTERISTICS</b>	<b>Bulb:</b>	Shape	Deep flat round
		Firmness	Moderate
		Exterior colour	Medium straw
		Interior colour	Cream white

**DISEASE TOLERANCE** *Pyrenochaeta terrestris*

## Wheat - Peregrine

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2. Maturity- very early 113days.
3. Very good standability, about 90cm height.
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5. High yielding - 7-9t/ha.
6. Protein content -11.2%7. Adaptability - both high and low potential areas

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# Backyard Farming Explained

## WHAT IS BACKYARD FARMING?

All around the world, backyard farming is a buzzing urban movement. In backyard farming regular people who live in typical houses in typical neighbourhoods are turning part of their backyard spaces into mini or micro farms. The term farming is used not gardening so as to make a distinction between ordinary gardening and to emphasize the idea of taking an active intensive approach to gardening at home in order to dramatically improve the results regardless of small backyard spaces.

## IT RELIES ON CREATIVITY

If you are creative with your backyard space you will be surprised how much can be grown in the smallest areas using vertical backyard farming techniques. Integration of vertical farming in your backyard can be done through store bought vertical systems or you can engage in a 'do it yourself' project. Some DIY systems include half plastic bottle vertical garden on wooden frame, vertical plastic bottle herb garden and bucket veggie ladder. You do not need land to be a farmer, all you need is creativity and determination.

## WHAT TO GROW?

The best advice is to only grow what your family will enjoy eating. After making a list of what your family or you eat regularly, now figure out what does well during that season. If economically possible one can try growing plants that do not do well in the current season with greenhouse techniques. Also think about containerised perennials, some examples of perennials are strawberries, herbs, artichoke and fruit trees.

## BENEFITS OF BACKYARD FARMING

**Saving on groceries** - by growing your own vegetables it reduces your monthly food bill. You can grow your own groceries at a fraction of the cost in the stores.

**Get to increase your physical activity** - tending your backyard farm for 30 minutes daily is a good source of physical activity which can help you burn calories stay fit.

**Eat Healthily** - reduced intake of processed foods and

vegetables. Studies show that vitamin and mineral content is also higher in freshly picked vegetables.

**Stress reliever** - gardening as a hobby can be stress reliever that can leave you feeling rejuvenated and happy overall.

### Household items

**recycling** - plastic bottles and containers can be used for building vertical farms, left over food and vegetable waste for composting and grey water for irrigating the plants. Grey water is water from kitchen or bathroom sinks, bathtubs, or washing machines that is can safely be captured and rerouted to the garden, provided that only eco-friendly chemicals have been used.



Backyard farming should be fun, and should not feel like a chore. Just start small, incorporate concepts one at a time, and watch your yard flourish with healthy, nutritious plants you for your meals. Follow us on ZiMunda Farming for a series of backyard farming ideas and watch your creativity soar with ideas.

*(Top) Plastic bottle vertical garden made by stringing the bottles horizontally in a grid along a wall, which then filled up by substrate for small leafy vegetables*

*(Bottom) A DIY project in creating a bucket veggie ladder. Suitable for all plants, tomatoes, potatoes, beans or containerised fruit trees.*

*Images provided by William Power & the Rooftop Gardener*

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## COVER

Lettuce at Venesia Mukarati's "160 Hydro Farm" by Melissa Katunga

