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FROM NUFARMER'S PEN

The new year started with many farms flooding and surely, it caused damage to implements and structure; over and above where cultivated land under plants were damaged. Then, on top of it, the news of high volumes of locusts that were hatched after the rains and subsequent high temeperatures. This keeps the locust spraying companies busy as on large scale farming, it is the only way to get quick results. Smaller farmers have to use sparay carts behind tractors or bakkies, but this is not always possible because of the sudden financial expense and lack of trained individuals to execute spraying locusts. In this edition is a feature on responsible use of chemicals and the neccessity to become trained well before going into a land. Our main story features a valuable aspect of agriculture's situation around or close to cities and larger rural towns. The population explosion around these are now seriously infringing on arable land that was formerly used by smaller farmers to produce vegetables, meat and dairy produce to their customers in town. The informal settlements are popping up all over and unfortunately arable land is mostly used for this purpose. At the same time these dwellers have little opportunity to acquire a reasonable piece of land in their vicinity to produce food for their households. Bellville has started to open an urban garden space for jobless people to train them in food production and this effort should be replicated around the country. We are looking forward to a prosperous agricultural season and sincerely hope our farmers, young would-be farmers and agricultural college students put shoulder to the wheel to progress agriculture towards new levels. Every success to all of you!

Cover pic: ***How new settlements close to agricultural produce markets inhibit food production and job opportunities***
(See article on page 4)

A QUIET MOMENT

"Be still, and know that I am God. I will be exalted among the nations, I will be exalted in the earth!"

Here at the beginning of a new year, God instructs us te become still. That is almost 'Keep quiet.' It is important that, especially before you tackle a hard day's work in the field, you become still before our Almighty Father. Because if we become still, it gives Him the opportunity to talk to you right there in your heart and mind. You see, God is jealous of His children and the time they spend with Him. During this time you become aware of the Greater Good working inside you towards your fellow human being. It is also the time you ask God, "Must I, or must I not? Give me wisdom, oh Lord!" This is the way King David went around with God, and if you ever read in Kings what wonderful victories David achieved on grounds of him becoming "Still" before the Lord, it is truly the way forwrd for us all! God Bless!

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PROPRIETOR:
Suzanne Oosthuizen (SO)
Cell: 082 832 1604
suzanne@axxess.co.za

ADDRESS:
P O Box 759
Montana Park
0159

OFFICE NUMBERS:
Tel: 012 – 543 0880
Fax: 086 518 3430

FINANCE / SUBSCRIPTIONS:
Marion Oosthuizen
Cell: 071 6399300
management@axxess.co.za

EDITORIAL CONTENTS:
Johan Swiegers
Cell: 082 882 7023
editors@axxess.co.za

ADVERTISING:
Suzanne Oosthuizen - 082 832 1604
D.T.P:
Yolandé van Zyl - 082 775 1002

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HOW NEW SETTLEMENTS CLOSE TO AGRICULTURAL PRODUCE MARKETS inhibit food production and job opportunities

Proud Mahlabalerole farm workers with there produce and Thabe Monyela.

Increasing use of agricultural land for non-farming purposes and sprawling occupations of arable land for residential purposes, poses a serious threat to food insecurity in rural areas. In yester years there used to be land designated for crop production purposes on which people would cultivate and produce their own food, particularly grains and vegetables. Of late, it becomes increasingly hard to obtain productive land which fulfills its initial purpose as many hectares have become residential areas. This offers less space on good, arable land for current and newcomer productive farmers with no other means of feeding themselves.

MAHLABALEROLE FARM: A STORY OF SURVIVAL

Mahlabalerole farm is situated at Tickelyn village near Trichardtsdal, within the Maruleng municipality around Hoedspruit town. It was established by the late Mr. William Monyela who had a strong passion to farm with short crops. Since his piece of land was near the then Madeira irrigation scheme which suffered the same fate (of being offered to informal settlements), learning and adoption of proper production methods was not difficult. Besides advice from extension service providers, he would model his practices from his neighbouring farmers (former irrigation lands). Given his hard work and perseverance, his farm was always productive throughout the year. In the process of working his farm, Monyela ensured that his legacy would live on even after he passes away. To ensure that it happens according to his wish, he worked with his late son Jimmy and two grandsons, Thabi and Serepane who currently manage the farm despite the passing away of its founder, Mr. William Monyela.

Taking advantage of favorable situations

The youthful brothers, Thabi and Serepane learnt much from their predecessors. They still continue

with grains and vegetables production to meet their home consumption and also sell the surplus to both local and national markets. Interestingly, being new role players in the field, they take an advantage of the prevailing favourable environment towards sustainable vegetables production growth. They offer their thanks to the presence of Spar Mopani Hub in the area whose facility is located in OFCOLACO. Mahlabalerole under the two brother team is amongst the twelve farms whose good quality produce are being packaged for Spar supermarket. The main objective of this initiative (Spar Mopani Hub) is to help Small-scale farmers to be sustainable through producing high quality produce which could meet the supermarket's requirement. In the process it creates decent jobs for a better living. This element closes a critical missing dimension which constitutes a serious constraint to vegetable producer's growth; not only to Mopani farmers but to the majority of emerging farmers in the vegetables industry. Particularly for those producers who are remote from viable markets.

Although this is their first production season with tomatoes, green beans, green pepper, baby corn and baby marrows being produced, they have managed to create a number of decent jobs for the people on their most productive eight hectares. However, there are serious challenges with which they still have to cope.

Challenges and Threats

As with other arable farm lands in the area, this source of food production and job opportunities, is under serious threat of being taken over by residential sites. This is a major concern not only to the two brothers, but to the area as a whole. Along with such a trend, joblessness, poverty, hunger and all social ills will follow. This is a reality as some arable pieces of productive portions around it have already been affected. Faced with such a plight and commitment to their Spar Mopani hub, the brothers have managed to make an informal agreement with two fellow land users who only plant crops during rainy summer seasons to meet their needs. Currently part of their cropping activities are on the three hectares borrowed from the two. Come the rainy season, they have to remove their pipes in order to allow the lenders to use their land as per agreement between the two parties. "That affects our plans for progressive farming and continuity in the market. An ideal situation for us would be to have a farming place far from sprawling residential areas. That would give us piece of mind and allow us to pursue our aspired business." says Monyela.

Packing shed required

Production space is not the only challenge to the Monyela brothers. A tractor and suitable implements to prepare the land is also a constraint. For now, this requirement is being catered for by the Spar Mopani Hub farmer support program. Together with this challenge is the need for a covered structure in which to execute packing activities for the market. For now, that activity happens under an improvised cover. As farmers say: 'n boer maak 'n plan (a farmer makes a plan).

The Monyelas are grateful for what the farm achieved and what they still wish to achieve. They are appreciative of the intervention of the Limpopo department of Agriculture and Rural Development; for its decision to improve the irrigation system (formerly the farm used flood systems). They now use proper drip irrigation systems which save a lot of water. "With the few jobs that this piece of land has created in its first season, indications are promising that we could do more," explains the soft speaking and optimistic young farmers.

Pictures and story: John Mtembi, freelance agriculture writer.

ARC WEATHER:
Wet conditions caused damage, but drier weather expected

The Agricultural Research Council's (ARC) automatic weather station network (see map below) recorded exceptionally high rainfall totals over a large part of the summer-grain production region between November 2021 and early January this year. Large parts of the summer-grain production region received in excess of 400 mm during this relatively short period.

The Agricultural Research Council's Agro-Climate Network, comprising over 500 automatic weather stations situated across the country, enables Agro-meteorology researchers to monitor and study the effects of weather events on South Africa's agricultural activities. The areas of expertise include various aspects of climatic effects on agriculture which, coupled with the long-term climate database (dating back nearly 100 years) housed at the ARC-Natural Resources and Engineering - Soil, Climate and Water, allows the ARC to conduct rapid and comprehensive research into all types of related occurrences.

At some of the locations in the western half of the Free State province, the rainfall recorded by the network during this period represents their average annual total. These are exceptional rainfall totals for such a relatively short period. The accompanying cool and cloudy conditions also resulted in significantly lower than average heat units and solar radiation, suppressing the development of planted crops.

While the timing of rainfall initially allowed most farmers to plant at least within a week of the optimal planting window, the copious amounts of rainfall and extended cool, cloudy spells resulted in damage related directly to water or due to the widespread occurrence of fungal pathogens and the inability to employ crop management options due to inaccessibility of certain fields.

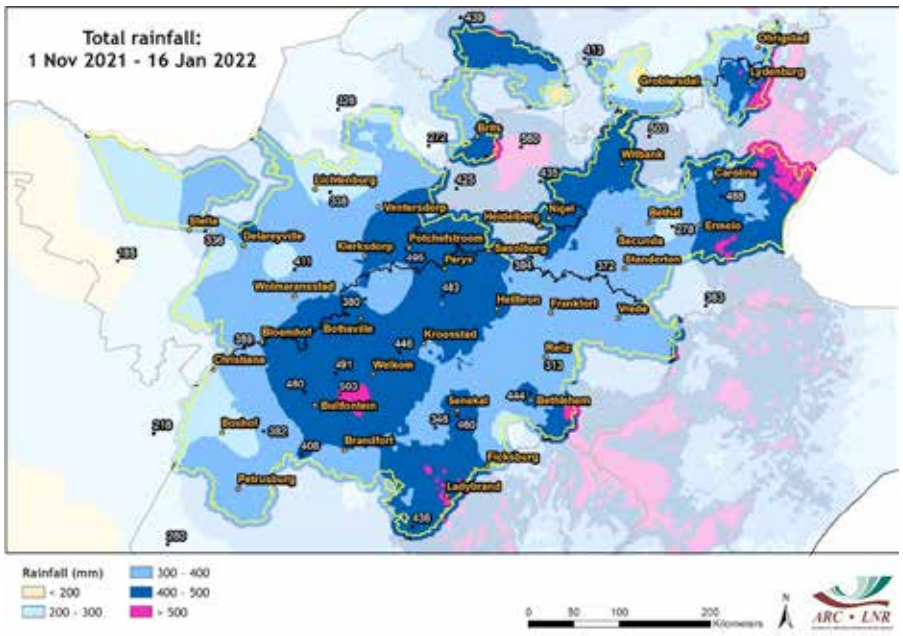
The Crop Estimates Committee, of which the ARC forms part, will have its regular monthly meetings in late January and late February during which the impact of the extreme wet conditions will become much clearer. The consensus currently is that significant damage was done in many areas, especially over the northern to western Free State. While grain crops incurred widespread damage, impacts on crops during wet conditions are highly variable, unlike during drought conditions when impacts are negative throughout most of the region. Therefore, given the favourable conditions for planting earlier, together with large areas that will benefit from the wet conditions, production of white and yellow maize together with other grains this year is still expected to be above normal, even though significantly less than the earlier expectations, and probably lower than during the 2020/21 summer which resulted in a surplus of about 3 million tonnes of maize as we enter 2022.

Historically, following such extreme wet conditions in early summer, it is typical to witness a drying trend during the second half of summer. In some years, drier conditions from late January following a very wet early summer even result in additional damage. At this stage, a continuation of very wet conditions is seen as the biggest threat to production over the entire summer-grain production region.

However, notwithstanding the expectations of wetter than normal conditions during the remainder of summer 2021/22 according to seasonal forecasts, the medium term outlook currently favours a return to near-normal rainfall and even below-normal rainfall, coupled with more sunshine, for the remainder of January and early February 2022. Therefore, while the damage has been done in some areas, there are indications that further water damage is unlikely in the short- to medium-term given the expected weather during the next two weeks.

The uncertain duration of the expected drier conditions, a possible return to a wet pattern with lower temperatures towards the latter part of the rainy season and possible locust outbreaks are, amongst others, aspects that can still impact the overall yield as we progress through the current production period.

ARC-Info



Picture: Beef Cattle Feed South Africa

IMPROVE DAIRY FEEDING SYSTEMS TO REMAIN PROFITABLE

The technology of feeding cows has changed drastically over past decades and will definitely continue in order to keep up with the demand for dairy, but also to keep the farming operation profitable.

Much advancement has been made in the insight into digestive physiology and fodder utilisation but there has also been ample progress in the ability to provide thoroughly balanced rations to the right cow at the right time.

It is no longer sufficient to provide cows with the correct amount of fodder over a 24-hour period. The feeding strategy must be planned throughout the day to take into consideration the varying digestibility of fibre, carbohydrates and protein fractions.

When a dairy farmer considers the changes in his feeding system, the first question that has to be studied is: What is the current system? Also, what shortages are there in the system? Is it breaking, or does it take too long to feed the cows, or is the farmer interested in buying new technology to upgrade his system? The scope of change will determine the scope of the expected change in production of the cows.

A dairy farmer who switches over from a feeding programme consisting of the provision of silage in the morning and afternoon and grain twice a day, to a total mixed ration (TMR) programme, will see a greater change in milk production than one who only adds computerised feeding stations to an already sufficient system. This envisaged change in milk production must be considered when cash-flow projections are done.

Post-feeding unit

A post-feeding unit is used for feeding cows after milking. The most important reasons some farmers are moving away from the method of feeding in the parlour are the following:

Where cows are fed according to production, the amount of fodder the cow receives is so much that she cannot consume all of it during milking time. Therefore, if feeding is not done after milking, milking time will be longer or the cows will eat less and this will lead to production losses.

By feeding outside the milking parlour, the shed is free of dust and the animals are calmer because there is less movement.

Milking time is shorter, with no production loss. With good planning, the material costs and construction costs of a milking parlour with a post-feeding unit will not necessarily be more expensive than a milk shed with troughs in it.

A post- feeding unit consists of a roofed space with feeding troughs and a concrete floor. To make the handling of cows easier during adverse weather condition, a crush with a neck clamp is usually affixed under the same roof. Not that the movement direction of the cows between the post-feeding unit and crush is opposite. This is necessary

>>> to page 8

BEEKEEPERS ADVICE: SPACE HIVES WIDELY

Because of the defensive nature of the African honeybee, apiaries should not contain too many colonies. The arbitrary number of 25 hives seems to be very satisfactory. Hives should be spaced as widely apart as possible.

At 5 m intervals in both directions, the suggested 25 hives would need a site measuring 30 m x 30 m. With fewer colonies in an apiary, the hives can be more widely spaced and the possibility of losing control over the bees is then much reduced.

The arrangement of the hives at the site is important. Rather than placing them in a perfectly symmetrical pattern or straight line. It is better to stagger the hives. Honeybees tent to drift more when hives are placed too close together or in a straight line. Natural landmarks like trees or shrubs will greatly facilitate orientation, as would be different colours or patterns of hive entrances.

Ants and termites in the apiary

The protection of the site against ants needs the constant attention of the beekeeper. Insecticides with long residual action are effective, but most of these are also toxic to bees. If the beekeeper has to resort to these, the apiary site should be treated before introducing the bees.

The perimeter of the apiary site can be treated with an insecticidal solution, preferably from a watering can, so as to give a barrier of 1 – 2 m wide. The insecticide is kept away from the hives, and serves as a long-acting first line of defence.

Picture: SABIO

Because the treated swath is wide, the chance of ants accidentally crossing it is reduced. Within this treated area, an insecticidal powder registered for use against ants is usually sufficient.

Treatment of hive timbers with the recommended chemicals will minimize termite damage.

Great care must be exercised when handling pesticides, which also are extremely toxic to honeybees and humans. Information can be found in "A guide to the control of plant pests" of the National Department of Agriculture.

Hive stands

Stand on which to place hives are mostly used in permanent sites because of costs and maintenance involved. They are used where dampness, ants, termites or honey badgers are a problem. They should be constructed as low as is compatible with their designed purpose, to make hive management easy for the beekeeper. Concrete slabs, galvanized iron sheets or treated wooden blocks (100 mm in diameter) are simple but effective stands.

Regardless of whether stands are used, the hives should be placed with the entrance about 25 mm lower than the back of the hive. This is to allow any accumulated condensation moisture to run out of the hive, and to prevent rainwater from accumulating in the hive.

Source: Beekeeping in South Africa: ARC Plant Protection Research Institute

<<< ***Improve dairy feeding systems: from page 7***

so that the cows do not associate with each other. If a cow is injured in the crush and the direction of movement is the same as in the post-feeding unit, she will be afraid of the post-feeding unit and will refuse to eat again.

The floor of the post-feeding unit must have a slope of 25% of easy cleaning of alleys with water. A high-pressure sprayer on a hose is usually used for this purpose.

The site of the post-feeding unit in relation to the milking parlour is important. If at all possible, the post-feeding unit must be relatively close to the parlour and it must be visible from the office.

Feeding in a post-feeding unit is usually done on a group basis. Groups in the herd are identified by means of coloured ear tags. Each group receives a predetermined amount of fodder determined on a mass basis and is associated to the colour.

The long feeding trough is divided into single troughs, so that each cow has her own feeding space to ensure individual feeding. Standing space is limited to 750 mm per cow.

In South Africa, concrete troughs are generally

Picture: Megalec

used, but stainless-steel and plastic troughs are also available in the trade. The disadvantage of the latter is that they break easily and make a noise when the cows are feeding. Plastic and stainless-steel troughs must rather be installed in the milking parlour if in-crate feeding is done, as the position of these troughs can be adjusted because it is not a fixed installation. The interiors of the concrete troughs must be finished off smoothly and not painted. Recommended concrete mixtures are 1 part of cement to 4 parts of sand and for the upper layer, 1 part of cement to 3 parts of sand. Recommended heights for the troughs are 51 mm above floor level at the front and back. In many cases, the back wall is built 1 300 mm high to prevent wastage.

By: Eksteen Lindeque

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POULTRY FARMING: Importance of feeding your birds well

As a poultry farmer one need to understand that it is not possible for any bird to put more in the egg for a longer period than is supplied through its feed. Modern, more efficient stocks ask for adequate feed.

With poultry, in the case of a lack of protein or energy, only a part of the genetic capacity is used. If minerals are lacking, the normal quantity of eggs may be reached, but without the usual quality of eggshells. Often imbalance of nutrients is confounded width breed effects.

Breed differences for eggshell quality are present. More efficient flocks require a higher mineral concentration to get the same absolute amount of minerals. Present genetic selection favours birds, which are productive, efficient, and utilising minerals in a way to achieve maximum shell strength. On the other hand formulation should count with the developments in requirements of modern laying stock.

It is known that calcium is the main mineral in shell formation. The Ca concentration in the feed should increase from 3.0% in the early stage of lay to 4.5%. Extra help can be expected from granular forms of calcium. Even if a flock is producing 70%, the individual bird should be able to form her full size shell more than 20 days in a row.

Besides calcium, manganese should also be sufficient, while an optimum level for phosfor and magnesium exists. The larger part of the eggshell is calcium taken directly form the duct. Shell formation occurs during the later part of the day and the night. Feed stimulation and calcium supply in the afternoon is more favourable for eggshell formation. The stronger shell of afternoon eggs, which have been formed during the day, while the bird was eating, illustrates this.

How much to feed

Here follows a rough guide as to how much feed, under average conditions, your chickens will eat. Remember that the actual quantity will also depend on other factors such as housing, whether it is hot or cold (chickens eat more in winter than in summer), the particular breed you use, the amount of feed wastage and other management considerations.

For broilers, you can work on using 0.75 to 1.0 kg of Starter feed per bird for the first three weeks, 1.25 kg to 1.5 kg of Finisher feed from three to five weeks, 1.0 to 1.3 kg of Finisher or Post-finisher from six to seven weeks, and 1.2 to 1.5 kg of Finisher or Post-finisher from six to seven weeks. Some farmers order a fixed amount of Starter for the number of broilers they have, and when that is finished, they change over to the Finisher. You may have a little of the last kind of feed left over when you sell your broilers, but you can keep it for the next batch.

Hybrid layer pullets will eat about 1.0 to 1.2 kg of Chick mash from day-old to six weeks of age, 2.5 to 3.0 kg of Grower mash from six to 12 weeks, 3.0 to 3.6 kg of Grower mash from 12 weeks to 18 weeks and 1.0 to 1.2 kg from 18 to 20 weeks. During the laying period, a hen should eat, on average, about 120 kg of Layer mash a day (this adds up to about 44 kg a year for each hen), but, remember that it will vary between about 80 g a day at 20 weeks of age to about 135 g a day at the end of the laying year.

It is therefore better not to try to feed your layers a fixed amount of feed each day but to make sure that there is always Layer mash to eat and they will adjust the amount they eat according to their needs at the time.

Make sure the feeders are not more than one-third full, otherwise the layers will waste a lot of feed – it is better to put feed in the feeders a number of times a day rather than over-filling them. Make sure that there is enough feed in the feeders in the late afternoon because this is the time that hens eat a lot. The egg is formed in the body overnight so the hen must get enough feed for this.

Feed concentrates

If you live in an area where maize or sorghum is cheap, you can reduce your costs by using these grains and adding what is called a concentrate. A concentrate is a commercial feed that contains all the normal feedstuffs except the cereal (maize/sorghum) part. You can get concentrates for all the different kinds of feed you may need. If you only keep a few birds, you can mix the concentrate and grain with shovels, but for large numbers of birds you will need a feed mixer.

Chicken feed usually contains about 50 to 70% maize. You can substitute about a third of this with sorghum. Make sure you mix the concentrate and maize/sorghum in the right proportions according to the instructions on the label of the concentrate bag. Remember that you will only save money this way if you are paying a low price for maize or sorghum. Consult your poultry adviser to check before buying an expensive piece of equipment like a feed mixer.

Feed storage

Proper storage of your chicken feed is important. You should have a cool, dry storeroom. Feed that gets damp becomes mouldy and can make chickens sick. Store the feed on wooden slats so that it is not directly on the floor, and do not lean the bags against the walls. In this way, air will be able to circulate around the bags and there will be fewer dark places where rats can make nests.

Keep different kinds of feed well separated. Do not keep feed fro too long (more than four to six weeks) otherwise it goes of and will no longer give the production levels you require. Remember to finish off any old feed before starting a new batch. Rats also eat chicken feed. If you see rats around during the day, then you know that you have a serious rat problem. Check for them at night. You can use rat poison, traps or cats to catch them. Never put the poison out where the chickens, domestic animals or children can reach it. ***By: Ed Wethli***

ONION PRODUCTION: Start the right way

Onions are always a product that the smaller farmer or gardener will find a market for. Here is some sound advice on how to plant and irrigate onions.

Onion farmers from the Tchia community adjacent to Maputo Special Reserve (MSR) in Mozambique, are celebrating after being able to take more than 7 000kg of produce to market following a very successful harvest. Using conservation agriculture techniques, the onions were grown in an area of about 0.8 hectares utilising minimal soil movement and fertilization of crops with livestock manure, in order to preserve the structure and biodiversity of the soil.

Picture & details: Peace Parks Foundation

Onion plants have a rooting depth of 40 cm, so wet the soil of the seedbed to this depth before you plant the seeds. You should keep the soil wet with small amounts of water until the seeds have germinated. After the seeds have germinated, water the soil to wet it to the rooting depth whenever it is half-dry.

Before you transplant the seedlings, wet the area where you will transplant to a depth of 90 cm. this is much deeper than the rooting depth but this water will help to keep the upper part of the soil wet, where the onion roots are. You should water lightly after you have transplanted the seedlings, until they begin to grow again. Then continue to water so that you wet the soil to the rooting depth of 40 cm whenever it is half-dry. You should stop irrigating when the first leaves begin to fall over and dry.

Harvesting

You can harvest onions when the leaves are still green. Tie them in bunches of three to six onions and trim the green leaves. Most farmers harvest their onions when about half of the plants have leaves that have fallen over.

To harvest onions, you need to pull them out of the ground by hand. You may need to irrigate the area lightly, or use a garden fork, to loosen the soil before pulling out the onions.

If you plan to sell your onions soon after lifting them, then cut off their top leaves in the field and leave them there for 2 to 3 days to dry. Pack the onions into 10 kg pockets to sell.

In South Africa, most farmers get a yield of 20 to 30 tonnes or 2 000 to 3 000 pockets per hectare (2 to 3 kg per square metre).

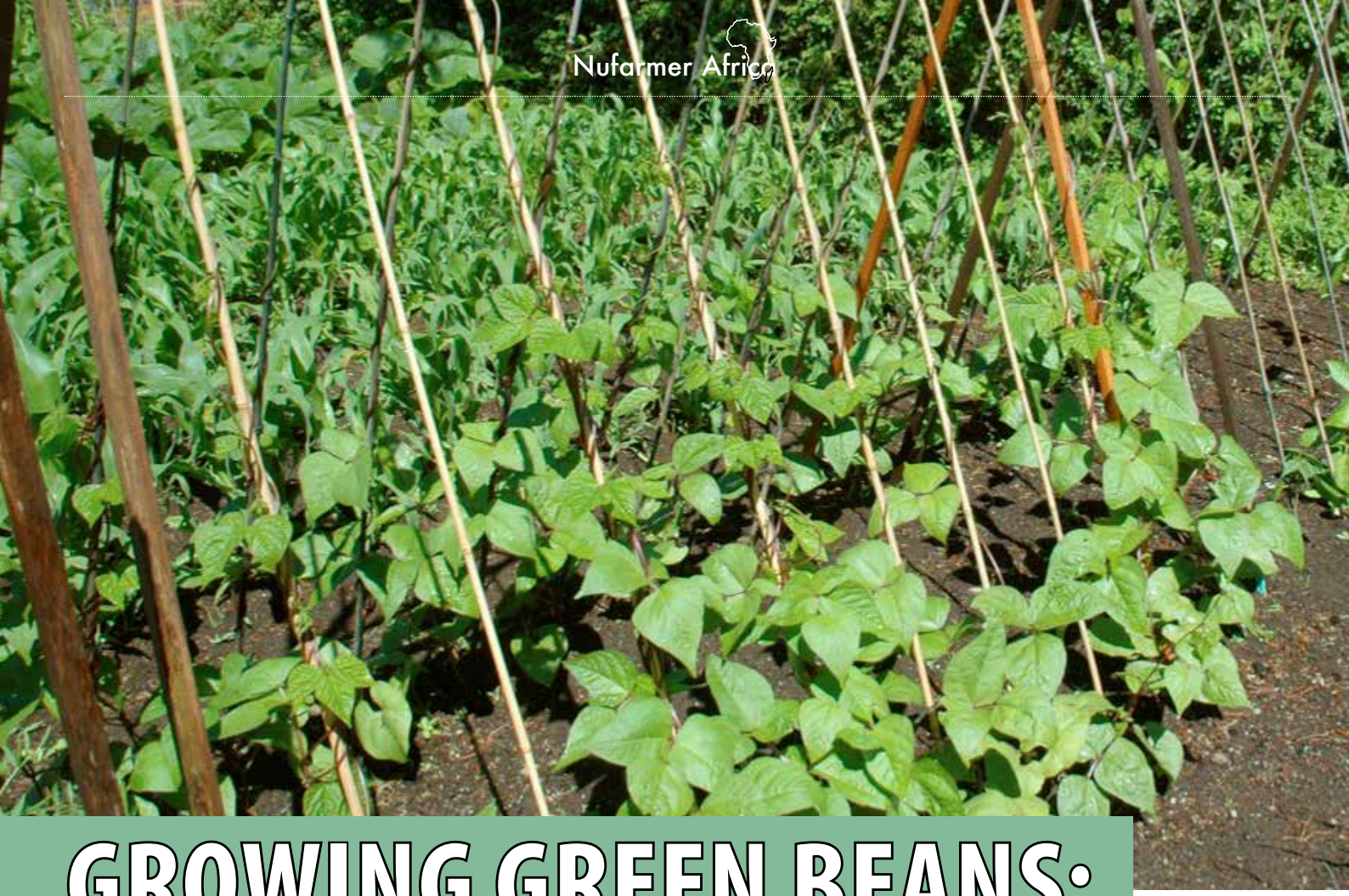
Storage

If you want to store your onions, their tops must be dried as quickly as possible after you have harvested them. Onions must be dry before you store them. Farmers usually leave their onions to dry in the land. Onions dry quickly if the weather is dry and warm. However, you must make sure that your onions do not get sunburn. To do this, place the onions in rows in a single layer, so that the leaves from one onion shade the bulb next to it and so on. If it rains while the onions are drying in the field, then turn them over so that they can dry on the other side as well.

The stems above the bulbs usually dry after 10 to 12 days. As soon as they are dry, you should cut off the leaves. You can now store the onions.

When storing onions, you need a dry area that is protected from rain and that air moves through. You can spread the onions on a dry floor in a layer that is 15 to 30 cm deep. You can also put the onions into wire cages, which are about 1 m wide and 1 m high with any length.

Onions can also be stored on wire shelves. Wire lets air move around the onions and this helps to keep them dry. You should check the stored onions every few days. Remove any that are rotting or sprouting green leaves. ***Source: The People's Guide to Farming: EDA Trust***



GROWING GREEN BEANS: Excellent rotational crop

Beans, like all legumes, have rhizobium bacterial living in nodules on their roots. The plants have a spreading root system with a rooting depth of about 90cm, but most of the roots are in the top 45cm in the soil. There are many different types of beans. Some types are grown for their dry seeds, while other types are grown for their green pods.

With green beans, farmers harvest when the pods are still green before the seeds have increased in size and become hard. With dry beans, farmers harvest after the pods have dried and the seeds have reached their full size. Beans grow either as small bushes or they produce long stems called runners which can climb along poles or along tall plants.

Beans are a good crop to grow in rotation with other crops or vegetables. They are fast growing and improve the soil because they are legumes. If you use implements to till, then for bean growing till the soil by ploughing and harrowing. If you use hand tools to till then till the soil by hoeing. You can also use the no tillage methods to grow beans.

Climate and soil

Beans are a warm season crop and are easily damaged by frost. They do not grow well in very hot weather either. It is therefore best to grow beans in winter in very hot areas. Beans grow well in areas that receive 600 to 1000mm of rainfall. If your area gets less than 600mm of rain, then you will need irrigation to grow cowpeas in these dry areas.

Areas with more than 1000mm of rain may not be suitable for beans because the wet weather can cause diseases. You can grow beans in many different soils, although deep, well-drained, fertile, sandy loam and loam soils are best. Beans do not grow well in heavy clay or in very sandy soils. Beans

prefer a slightly acidic soil. Get your soil tested to see if you need to add lime.

Planting

Time of planting- in areas that get frost in winter, you should plant beans after the danger of frost has passed until mid-January. In hot areas that do not get frost, the best time for planting green beans is from February to September.

Plant spacing- for bush beans, the between-row spacing is usually 50cm and the in-row spacing is about 5cm. For runner beans, use a between-row spacing of 50 to 90cm and an in-row spacing of 10 to 15cm. Runner beans need poles or trellises to climb along. You can let two to three plants climb along one pole. You can use long, thin sticks or pieces of cane or bamboo for the poles. Put the poles in the ground and join them together.

Irrigation

Do not do frequent, light watering. Splashing a little water on the beans will make them happy, just as a wake-up splash refreshes one, but is a big mistake on green beans! The reverse is true for plants. Water

the plants deeply but gently to a depth of 8 to 10cm. Thorough soaking encourages the roots to seek water deep in the soil. With a deep root system, the plants can survive hot, dry weather a lot better. Don't irrigate by the calendar, but rather when the plants need it. Check the appearance of the plants, the condition of the soil on the surface and the condition four to five inches down. Plants will often look wilted on a hot afternoon; but will be revived overnight. If the plants look wilted in the morning, they need watering. A good mulch will save water, protect the soil from the sun's scorching heat, keep the root area of the plants cooler and reduce evaporation. Water early in the day so that it allows plenty of time for the leaves to dry. If the leaves are wet overnight, diseases can quickly invade the plants.

With furrow irrigation, drip irrigation or soaker hoses, which all deliver water at the soil surface and not on the leaves you can water in the late afternoon, evening or even at night. Try to avoid watering during the middle of the day because evaporation losses are usually highest during midday.

Never overwater. The soil, while anchoring the plant, also acts like a sponge. It can only hold so much water. Learn the water-holding capacity of your soil, and don't waste precious water or smother the roots of your plants.

Source: EDA Trust.

TRAINING ENSURES EFFECTIVE CROP PROTECTION

Without crop protection products (chemical or biological) it would be impossible to produce sufficient food for the increasing global population. However, this valuable input has to be used safely and responsibly in the long-term interest of the environment, humans and animals, in addition to preventing the development of resistance against specific products. The emphasis is therefore on using the right product, for the right reason at the right time.

Agrochemicals are becoming more expensive, pests develop resistance against products and new compounds are increasingly rare according to InteliGro. At the start of the summer grains season they present a series of spray clinics for growers and spray operators.

To date, 10 spray clinics have taken place in the Free State, Mpumalanga and Northern Cape. More are in the planning pipeline, given the interest from growers and the overwhelmingly positive feedback.

Twofold approach

According to Janet Lawless from InteliGro, the spray clinics stand on two legs, namely the responsible use of agrochemicals and effective application practices. "Underpinning both is the responsibility we accept for safeguarding the environment and the wellbeing of humans and animals," she says. "This stewardship starts on the farm, as does everything else we do."

Given this dual focus, the purpose of the spray clinics is to give crop protection products the best possible chance at being used cost effectively and with the best possible results.

The part of the workshop that deals with the responsible use of products, includes topics such as how to accurately read and interpret the product label, why it is important to closely adhere to the safety measures and how to dispose of empty containers.

Often, spray operators do not fully understand the danger involved in the handling of agrochemical products. The correct disposal of empty containers cannot be emphasized enough. Under no circumstances may empty agrochemical containers be used for any other purposes. They must, instead, be handled according to the Croplife SA guidelines and delivered to an approved collection point where accredited organisations can collect them for recycling. All this information is available on the Croplife website (www.croplifesa.co.za).

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Keeping your ewes with their off-spring secure is part of good lambing management Picture: Petri Botha

LAMBING MANAGEMENT: IMPORTANT TO A SHEEP FARMER

In a Drifting system ewes are mostly kept in camps smaller than in the extensive system and pregnant ewes are daily moved to another camp, while those with lambs stay behind. Should a four-camp system be used, the newly born lambs and their mothers remain alone together for three days, during which time bonding takes place.

On the fourth day, they are moved to a large lamb flock and the pregnant ewes then moved back to Camp no 1. Pregnant ewes rotate between camps until the end of lambing. If possible, ewes with single lambs should be separated from those with twins. This system is very practical and controllable. It can definitely contribute to the lowering of lamb mortalities provided the concentration of ewes with lambs per given unit area is not too high.

Small-flock or small-camp system

In this system, smaller lamb camps are used and the ewes and lambs remain in there until lambing is over. The small camps must be easily accessible and preferably not be more than 5 to 10 hectares in size. In the Bredasdorp (Overberg, Western Cape) area, farmers successfully make use of camps of 1 to 1.5 hectares. Electric fencing can be most useful and although an initial expensive investment, aids in securing the animals.

There must preferably not be more than 25 to 30 ewes per camp in the case of twins, and 40 to 50 ewes in the case of single births, with a maximum of 10 to 18 ewes per hectare. Where ewes are not scanned it is recommended that around 35 pregnant ewes be put in a small camp. Farmers profess that lamb theft increases with this system if ewes are put in lamb camps according to lambing date.

This is possible where marking material (margarine-ochre mixture) is smeared on the chest of the ram and the colour is changed weekly. It is consequently recommended that ewes be divided into the lamb camps as they arrive. This system has a lower labour input with limited lamb mortalities.

It is important that ewes in both semi-intensive systems (drift and small flock systems) be moved at least 14 days before lambing to the lamb camps so that they can adapt to the grazing and can become accustomed to people. Both these methods have the advantage of ease of supervision and therefore feeding as well as problems of pregnancy and lactation amongst ewes can be well monitored.

Intensive system

With this system, the ewes, after they have lambed, are individually penned in pens of approximately 1,4 x 1,4 m with a height of 1,09 m to protect them against the elements (cold, wind, rain and heat). Pregnant ewes are kept in camps near to the pens. The ewes are left alone with their lambs for at least two to six hours before they are put into lamb pens. The system makes it easier to identify ewes and their lambs. Although this system is labour intensive, lamb mortalities are limited (should be less than 10 percent). It is advisable to do trials with this system in all its aspects to proof whether it is economically viable for the particular farmer.

Source: Sheep Farming in SA, et al.

It is important that ewes in both semi-intensive systems (drift and small flock systems) be moved at least 14 days before lambing to the lamb camps Picture: Petri Botha

The Life Changing Garden in Bellville, Western Cape.

BELLVILLE'S FIRST URBAN FOOD GARDEN brings hope and growth

The Greater Tygerberg Partnership (GTP) in collaboration with MES - Safe Space, GrowZA and Xylem in October 2021 officially opened Bellville's urban food garden, known as the Life Changing Garden, with its first spring harvest with produce now available to the community.

For Bellville, the second metropolitan node of the City of Cape Town, the food garden is most definitely changing lives by supporting the nutritional wellbeing of homeless and jobless adults in the area, providing water and food security, developing urban farming skills, and providing affordable healthy produce for sale to the community to raise funds for the urban gardening project.

The Life Changing Garden was first developed by a resident at MES (Mould Empower Serve) which is a Christian Based Organisation (CBO) with branches nationally.

MES is an important refuge for the homeless and vulnerable of the Bellville CBD that helps individuals start their journey towards rehabilitation, reintegration into the community or reunification with their families.

Their mission is to empower people holistically to live independent, sustainable and meaningful lives. The objective with this urban food garden project is to generate income, improve health, nutrition and food security at the MES - Safe Space and to encourage and empower the surrounding community to start their own food gardens.

"With the devastating global pandemic affecting communities the importance of water and food security in cities, and helping the poor has been glaringly highlighted," says Warren Hewitt, CEO of the Greater Tygerberg Partnership, a development facilitation agency charged with a mandate to unlock Bellville's potential as a sustainable, prosperous and inclusive leading African city.

GTP joined the garden initiative in February 2021, generously funding a support and mentorship program, undertaken by Horticulturist Paul Barker who has been working with the beneficiaries at the MES - Safe Space, with a 10-module training and mentorship program.

Together the Greater Tygerberg Partnership, MES - Safe Space, as well as Xylem and GrowZA, a non-profit organisation that facilitates Economic Growth and Enterprise Development, aims to develop a thriving urban agriculture and learning centre that benefits the entire community.

Craig Kensley, director from GrowZA Social Investment Agency says, "The work of the GTP is critical as a catalyst to change. GrowZA also works to accelerate social progress, giving people practical access to opportunity and services.

That is what the GTP is in business of and what MES delivers; they have accelerated what they are doing from a step up, job opportunity and economic perspective in a practical step forward."

The borehole, which also went up today, is important to ensure a sustainable source of quality water for the food garden's success.

Green beans plants in the new garden in Bellville.

Kensley adds, "The Water solution is a gamechanger for the project; the garden gets all the water needed without the weight of the overhead which impacts pricing and quality of the market." GrowZA funded the compost, borehole installation, as well as contribution to the garden launch to the value of R144 000.00.

Currently holding sixteen beds over 300sqm, the garden will be expanded over time to around 600sqm. "Our vision is to develop and manage the site using organic and sustainable practices throughout, and where possible, to incorporate a social enterprise business model in order to operate successful programs," says Hewitt.

The food garden has the ability to grow into a larger urban farming initiative as there is more land on site and there is space to plant trees.

The open space includes a variety of uses that will benefit the residents of Bellville and the surrounding community.

For example, the space can be used as a field trip destination for local students as an outdoor learning lab where they can learn about permaculture and land management.

COMBAT SALMONELLA IN PIGS

The Salmonella organism, known as Salmonella choleraesuis was first isolated from pigs in1886, when it was found to be the cause of swine fever. The importance of the organism as a cause of disease in pigs was neglected when the true cause of swine fever was discovered. A number of years passed before Salmonella was recognised as a primary pathogen that was capable of causing several different disease syndromes. Pork and pork products are recognised as one of the major sources for human salmonellosis.

Impact of Salmonella on the pig industry

Salmonella enterica var Typhimurium impacts the pig industry in two major areas of production. Firstly, salmonella is an important disease-causing bacterium in weanling pigs resulting in lower growth rates and feed efficiency during the nursery period. Lower body weights at the end of the nursery period are hard to regain during the grower/finisher period and tend to result in lower market weights.

Secondly asymptomatic intestinal carriage of salmonella can result in the development of the latent carrier state where the infected animal will continue to shed salmonella up to 28 weeks post infection. Some pigs will be in the latent carrier state of the disease all their lives which has a huge impact on post-harvest food safety.

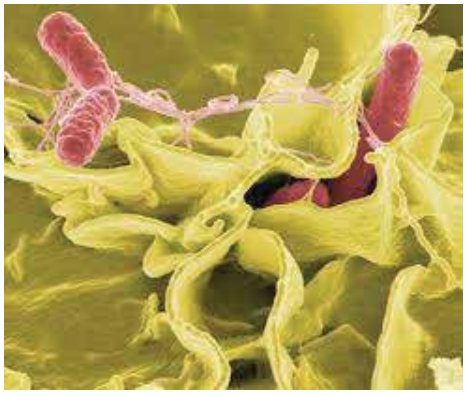
Furthermore, sub-clinical intestinal carriage of pathogens, such as salmonella by pigs may lead to carcass contamination at slaughter. Pork may become contaminated during the slaughter process as a result of salmonella presence on the hide, contamination of equipment or accidental splitting of the gastrointestinal tract and spillage of the gut contents onto the carcass. It is assumed that the more salmonella that is carried into the slaughter process, the higher the risk of contamination of the final pork product.

Several studies have reported significantly higher salmonella prevalence rates in pigs tested at the slaughter facility than in pigs tested on the farm. Stress associated with transport has been suggested as a reason for the increase in salmonella shedding. The contaminated environment of the holding pen where animals can reside for hours prior to slaughter has also been identified as a significant source of salmonella for pigs. These findings may help to identify a suitable point of salmonella control in the process from farm to fork.

Clinical signs

Infection of pigs with large doses of Salmonella choleraesuis is likely to develop into severe generalised clinical disease starting with a septicaemia (blood infection) followed by severe pneumonia and enteritis. Subsequently the organism may settle out in a variety of tissues including the central nervous system, resulting in meningitis, and the joints resulting in arthritis.

Salmonella typhimurium and Salmonella derby may also cause septicaemia, become generalised and involved in pneumonia but in most pigs these are transient and enteritis is the only persistent manifestation and results in severe diarrhoea. Salmonellosis can occur at any age but is most common in growing pigs over eight weeks of age. Severe Salmonella choleraesuis infection occurs typically at around 12 to 14 weeks.



Salmonella bacterium under the microscope.

Risk factors: Animal Feed

Large quantities of feed are produced, transported and stored daily for use in the pork production industry. Even minor salmonella contamination at this level has the potential to affect many herds.

Proper control and decontamination steps, such as heat treatment and secure storage of final feed free from contact with reservoir hosts (e.g. rodents and birds) are essential to avoid the spread of contaminated feed to herds.

Transmission of infection

Although transmission of salmonella typically occurs via the faecal-oral route or by aerosol transmission, other vectors must also be considered as possible routes of salmonella dissemination. In pigs, observed sources of contamination include human, insects, rodents and contaminated feed and individual component feed ingredients.

Controlling the spread of salmonella on farm

If a salmonella outbreak takes place on a farm, control measures must be immediately implemented to prevent the spread of the organism between units. Such measures include:

- Vermin including rats, mice and birds are vectors for the spread of salmonella between buildings and even pens so a good pest control policy is essential
- Units should operate a policy of a complete break when pigs are moved to the next stage housing, for instance, at weaning.
- Piglets should only be moved to pens that have

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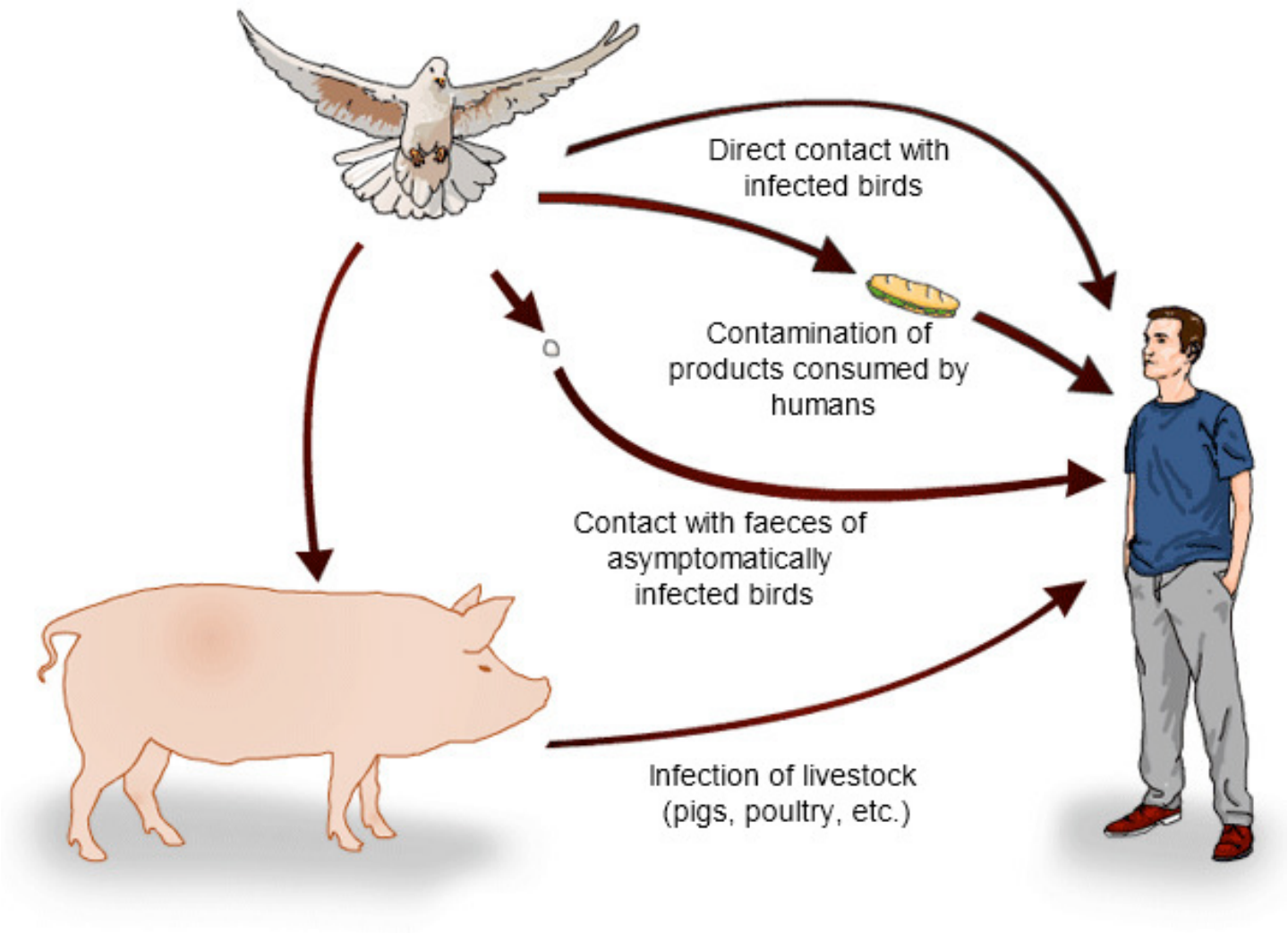
<<< *Combat Salmonella in pigs: from page 17*



undergone a proper cleaning and disinfection procedure.
- There should be no mixing with older pigs at any stage.
- 'All-in/all-out' housing systems on a room or house basis help to break the cycle of re-infection.
- As far as possible, pigs and staff should only move in one direction – from younger to older pigs.

Following good hygiene, cleaning and disinfection practices

Good hygiene is essential to limit the spread of organisms through a pig farm. Cleaning and disinfection must be done properly if it is to be effective.

1. Clean all surfaces properly as dirt inactivates disinfectants.
2. Use of recommended disinfectants at the correct dilution, temperature and time.
3. Drying afterwards helps kill bacteria.
4. Providing footbaths at the entrances to buildings helps to control the spread of infection.
5. Feeders and drinkers should also be cleaned and disinfected between batches.

Nutritional solutions

Eradication of salmonella from infected herds is often a difficult and sometimes unattainable target. A far more realistic approach to the issue lies in the prevention and control of the infection and experiences from the field suggest that the following strategies may be helpful in achieving these objectives.

A strong and well developed immune system helps the piglet to more effectively defend itself against invading disease-causing bacteria. One of the most effective approaches to enhancing piglet immunity is to ensure that every piglet receives a good supply of quality colostrum after birth. One nutritional strategy that has been successful in achieving an increase in immune-globulins in sow colostrum is the supplementation of gestation and lactation diets. ***Source: Pig Farming Manual.***

MODEL FOR EMERGING AGRIBUSINESS MARKETS: Colombia's flower farmers an example

South Africa, with its vast population and inert love for flowers and its many knowledgeable patriots to flower growing can make a return. Re-establishing the love for flowers and the positive mood it sets in the home or office, can be rejuvenated to create a buoyant local market (Editors comments).

Colombia's fifth biggest export product is cut flowers and now makes up 80% of flower imports to the US.

The way Colombia got to this critical position in US import markets is exceptional story in itself. The development of an export-oriented industry posed and still poses dynamic advantages for agribusinesses. The avocado and cannabis industries are both examples of agricultural segments that leaned heavily on the model designed by the flower industry.

Since the flower industry requires such a high degree of efficiency and reliability, its processes and methods are very much focused. For instance; cut flowers require very tight logistics in order to avoid wasting shipments. They also often involve genetic modification and monitoring.

Currently, Colombia's agriculture exports are strong and are becoming even stronger. During the first quarter of 2021, agricultural exports grew by 16.5%. Mexico, Iraq, South Korea, Brazil, and Egypt are the main export markets with growing imports of Colombian agri-products.

Altogether they consumed USD126 million more than in 2019. This success is closely linked to tireless export promotion work and performance strengthening.

Exhaustive work is done for every new potential market in order to streamline regulatory protocols and establish trade infrastructure.

Importantly, at the level of associations and partnerships, a lot of effort is put into sharing and instructing associates on industry best-practice and on technology transfer.

In conversation with TBY, the President of the Colombian Asociación of Cocoa growers, Eduard Baquero, noted how 2020 marked the beginning of virtual training for cocoa farmers. The know-how and research have to be made available to farmers in order to ensure the high-quality standards that have become trademarks in the sector.

The transformative potential of agriculture is immense, particularly in Colombia. Crop replacement has proven to be the most long-lasting and efficient method in the fight against illicit crops. Additionally, because agriculture is traditionally rooted in rural and family business structures, growth has a very direct impact on the livelihoods of partners.

Colombia is doing very well in tapping into its agriculture potential—more than 32 million hectares are available for crop production.

(The Business year – contents edited)

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