ZIMUNDA FARMING

NEWSLETTER ISSUE 3 JUNE 2020

AGRONOMY

CATTLE

POULTRY

A GUIDE TO GROUNDWORK FOR TOBACCO SEEDLINGS HERD IMPROVEMENT THROUGH CROSSBREEDING CARING FOR CHICKENS OVER WINTER

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A Brief Guide on the Grounding Work for Seedlings BY ELOISE MALONEY

Ripple Mead Farm, Rusape

Tobacco seedling production takes place at a time of the year during which growing conditions, including weather, are not favourable for plant growth and this is why the production husbandry needs a little extra attention. Environmental conditions greatly influence the quality of nursery plants. The results of inappropriate conditions, such as high-density planting, unsuitable fertilisation and poor climatic conditions, are either etiolated seedlings, or proliferate growth of succulent tissue, which is even more vulnerable to diseases.

Seedbed Site - Good positioning of a seedbed site is the first step to creating the best head start for tobacco seedling production. For best coverage of sun and better chances of protection from prevailing winds, seedbeds should be sited in a warm vicinity of your farm, with a north to north-west facing slope. The most suitable soils for tobacco seedling production are fertile, well drained and loamy sand. Heavier textured soils which are not likely to drain well, are difficult to manage and less likely to produce the sought-after seedlings. Fencing the site to keep out any animals or wandering persons is recommended. In cold areas, to minimise the incidences of frost it is sometimes practiced to thatch the fence well with cut grass from the surrounding areas. To limit the spread of disease-causing microorganisms, disease hygiene is essential in seedbeds. It is recommended to have a wash station with running water and soap for hand sanitisation and a footbath with disinfectant at the entrance to your site before allowing anybody into the site. Do not allow any form of nicotine products into the site such as smoking, snuff or chew tobacco.

Seedbeds and Sowing - Before the beds are made, weed and nematode control is necessary. Refer to

your agronomist for the best options for you and your farm for guidance on chemicals. Standard beds would be 30m long by 1.2m wide and a 400mm pathway between each bed; the bed will give you an area of 36m2. Once the bed is made up and before sowing, apply fertiliser; 5kg per bed of Compound S, spread evenly throughout the bed. The best way to calculate this is to divide the bed into 6m sections and apply 1kg of fertiliser per section. When sowing the seed, apply 1.65grams of seed into a watering can with a 1.2m wide perforated boom. The perforations should be 1.5mm in diameter and 20mm apart. Whilst sowing the seed the water must be agitated to disperse the seed evenly.

Cold Management - After sowing in June, it is wise to protect your very vulnerable seed from the elements. If you have planted your seed in June, the cold is the most common weather phenomenon to try to protect your seed from. The risk of frost is higher in the Highveld. There are various ways and steps to ensure the seed is protected from the cold.

- As well as keeping seeds protected from the cold, mulching prevents water from evaporating. Less watering is therefore needed. Additionally, it protects the soil from wind, rain and sun, and suppresses weed growth by blocking out sunlight. Fine, non-leafy grass cut into roughly 30cm lengths is great mulch, however after cutting the grass it is wise to fumigate for pests and disease before applying evenly to the seed bed.



Leveled out nursery seedbeds ready for planting



TOBACCO SEEDBEDS



- Coarse sand or gravel is another option for mulch with particles the size of 4-6mm. Nappy liner on top of the grass or perforated plastic to lie flat on top of the gravel or sand is recommended as a supplement for seedbeds when the weather is cold.

- In addition, to the above-mentioned methods, one could use light weight polypropylene covers or tents, with 8-gauge wire to make a hoop shape over the bed, approximately 1-2m apart to support the tents. These tents help to create a microclimate to encourage growth with temperatures reaching up to 35 degrees Celsius. These seed bed covers must be covered at night and only taken off when watering in the day for 2 hours.

Diseases and Spraying Regime - To avoid the spread of diseases in seedbed sites, take advice from your agronomist on which chemicals are necessary for you and your farm. It is advisable to practice the following safety measures for seedbed sprays.

- Ensure there are the correct wash facilities at the entry to the seedbed site as described in seedbed preparation and sowing.

- Remove any plastic seedbed covers before spraying and strive to spray in cool or cloudy weather to steer clear of injure to the leaves.

- One should submit an application of sprays after watering and leaves have dried.

- After each spray, the plant should be allowed to dry again before any additional watering takes place. If it rains before the sprays have dried, sprays should be reapplied.

- All seedbeds should be sprayed until they are ploughed in. Take note that unsprayed beds left after pulling may become infected and spread disease.

Consult your agronomist for the correct spray program to prevent and treat any diseases invading your seedbed site. Some diseases to look out for are Anthracnose, Wild Fire, Angular Leaf Spot and Frogeye. Anthracnose shows symptoms of brown lesions on leaves, midribs and stems. Leaf lesions are circular and often with darker edge. Wild Fire has circular brown lesions with a halo around each lesion. Angular shows irregular, usually small dark lesions on leaves and stems and Frogeye displays with brown circular lesions with greyish white centres on leaves. The lesions on the stems often have white centres.

Watering and Hardening - There are 5 methods of watering seedlings; these include perforated pipes, overhead sprinklers, micro jet, water bowser (flooding) and hand watering. 2.5 per square meter is the daily recommended watering guideline. This is roughly 90l per bed per day. Once the seedlings are approximately 30cm long and slightly thicker than the thickness of a pencil, it is time for clipping. The clipping method helps improve evenness and enables the smaller plants to catch up to the larger ones. The process of hardening is done at this time as well. When hardening, cut all water for roughly 2-4 weeks, depending on your area. This encourages plant hardiness and a degree of drought resistance; in addition, it is a major factor for early root development and growth. A good indicator that the seedlings need water again is if they are wilting significantly before 10am. Heavy soils take longer to dry than lighter soils. 2 days before transplanting, on or after the 1st of September, reintroduce water to your hardened seedlings at plus or minus 90l per bed, as per calculations above. This will stimulate the plants and lessen effort on pulling seedlings out the ground for transplanting.

Having good quality seedlings sets a farmer up for a fine start and serves as a good management tool for the rest of the season, with follow-on of potentially better yields at the end of





(Above) Lightweight perforated polypropylene seedbed covers for cold management

(Left) Uncovered seedbeds for overhead irrigation and chemical spraying



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AGRONOMY



Onion - Capricio

	For both fresh and dry market		
TYPE	Open pollinated		
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

Wheat - Peregrine

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

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OUT & ABOUT

The Big Seed Swap

BY SARA DAVIES

The Zimbabwe Seed Savers (ZSS) group held its first event in late summer; the Big Seed Swap at the Pomona Community Farm. The aim of ZSS is to bring small scale farmers together and demonstrate that it is possible to grow food crops in urban environments. The event brought together people from all walks of life, backyard growers, small-scale farmers, tree growers as well as gardeners whose main interest is ornamental plants;

all united by the passion for growing crops and plants. It was not just seeds which were shared but the event set a networking platform; knowledge sharing, established contact details, ideas and sharing of experiences.

The ZSS is a fairly new initiative that was formed initially as a mere WhatsApp group in November 2019. This event was the first opportunity for the group to meet physically and put names to faces. Most brought seeds that they had to share and swapped for the seeds they wanted. Yet others simply came to share the experience. The seeds swapped included collections of storebought packets which were presented alongside home-grown seeds. The seeds swapped came in different packaging; some brought seeds pre-packed in small quantities (envelopes or small cellophane plastic sachets), others brought theirs in bowls, jars/bags to offer a pinch of this

or a handful of that. Seedlings and saplings, including baobab, neem, nartjies and tree tomatoes, were also being swapped along with a good selection of succulents for the ornamental garden. Wilsher Kampira, who works with the Tree Knowers and Growers commented that she got enough seeds to upgrade her township nursery in which she is striving for success.

As the coordinator of the event, I mingled with the crowd to get their opinions about the event. Here is what some had to say;

Biggie Musemwa, a participant noted that "The message shared at this event is essential to farmers

and gardeners as it was an opportunity for them to be equipped with sustainable facts for reforestation, medicine and how to provide household food security in our country through urban farming and local seed sharing".

Lorna Cruger, one of the organisers said that "The Seed Day was an excellent way not only to share seeds

> and plants but also to share knowledge and enthusiasm. It was so wonderful to meet all the participants".

The Pomona Community Farm was pleased with the turn out. Their model encourages backyard growers to bring their produce to the farm where it can be sold in the Farmers' Market. Ensuring their producers have good seed is critical for the varieties they are able to offer to consumers. David Reeler, who runs the Farmers' Market at the Farm said that, "The Seed Swap exemplifies a core goal of the Pomona Community Farm, to build networks of growers who participate in the sharing economy".

Encouraged by the success of this first event, the intention is to hold a Seed Swap every quarter of the year. This should encourage backyard growers and farmers to learn how to save their seed. For updates on future events by joining the Urban Farming Zimbabwe group on Facebook.

Local seeds are key components of incredible biodiversity and strong cultural roots conservation in local based agroecosystems.

- (Gliessman, 2015)

Image provided by Sara Davies

WHAT IS SEED SAVING?

AN AGROECOLOGICAL POINT OF VIEW

Seed saving in principle is the careful selection of seeds with desired traits; selecting, collecting and saving. The concept in practice includes seed exchange strategies for dissemination and exchange (swapping) of the saved genetic material. It is a social–ecological linkage strategy shaped to enhance urban agro-diversity through the saving of ancestral seeds, to maintain quality, purity, and germination capacity within urban farming groups. The seed swaps promote farmer resources, endowments, appreciation of small-scale farming genetic resources, foster social bonds among community members and families, and maintain seed banks for informal household markets.

The Editor's note







Herd Improvement Through Crossbreeding

BY VIMBAI RUVENGO

Most small holder farmers in Zimbabwe use indigenous Heterosis occurs when breed A and B, two pure breeds livestock breeds, which are naturally adapted to local conditions. However, in dairy farming their potential is poor as they yield low quantities of milk, take longer to mature and usually do not let down milk unless

stimulated by a suckling calf. Improving the productivity

of indigenous breeds can be done by crossing them with foreign ones. The culture of breeders exchanging animals for breeding services is very low in Zimbabwe. The high acquisition costs of breeding animals and materials, as well as limited access and use of technologies such as artificial insemination leaves livestock populations remain highly inbred. High levels of inbreeding lead to reductions in dairy milk production from

6-7 litres down to as low as 3 litres per day. Inbreeding is defined as the mating of individuals that are related. It leads to undesirable recessive disorders, loss of genetic variation, and inbreeding depression (reduced biological fitness) of livestock.

Introducing technologies such as crossbreeding is important for raising dairy productivity, but this will require resource support to enable farmers to manage this increased productivity in terms of inputs and extension services. Crossbreeding combines different breeds in very tightly controlled ratios. An example of a crossbreeding program is a terminal cross in which both parents are purebred cattle, but from two distinct breeds, and the calves are always a 50/50 mix of the two breeds. For example, a Mashona breed and a Simmental. It is called a terminal cross precisely because the calves produced by the crossbred cattle are never allowed back into the breeding herd. In order to maintain perfect breed ratios in your herd you cannot simply rebreed the offspring of these crossbred cattle, you always have to source your replacement breeding stock from purebred cattle herds in order to maintain consistent breed ratios.



are crossed to produce a F1 progeny (AB) that contains equal parts of two breeds.

Crossbreeds benefit from hybrid vigour (also called heterosis), whereby traits such as fertility, health



and longevity are particularly enhanced by crossbreeding. It allows the improvement of standard production traits such as milk production, growth rate, production of total animal protein and improve reproductive and weaning rates in beef cattle. Improved variety of cattle and other livestock can increase production

Simmental cross Tuli calf

efficiency and can reduce the amount of resources and inputs farmers require for livestock production.

Cow Type	% Pregnant	Weaning Wt (Lbs)
Hereford	82	492
Angus	84	498
Brahman	79	513
Angus Cross	86	523
Brahman X Hereford	97	619
Angus X Brahman	96	612

Studies show that crossbreeding can produce a 20% increase in weight of calf weaned per cow exposed to a herd sire. A three-year study conducted by the University of Florida, in central Texas indicated that the Brahman x Hereford cross and the Angus x Brahman cross have a higher percentage in reproduction as well as higher weaning weights as compared to the pure breeds. This is an evident advantage of heterosis; the average superiority of a crossbred individual over the average of breeds involved in the cross.

Modern livestock breeding methods such as artificial insemination are often unaffordable for farmers with small counts of sheep, goats and small herds of cattle; due to the required technologies, costs involved and the skills required. Initiatives such as community-based breeding such as that done by the Feed the Future Program (by USAID Organisation), increases the productivity and profitability of indigenous breeds without undermining their resilience and genetic integrity, and with low intervention. The use of artificial insemination (AI) may make the adoption of the crossbreeding system more feasible provided the expertise, labour, and facilities are available.

Images provided by John Crawford & Vimbai Ruvengo

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Perspectives on Artificial Insemination in Communal Areas

BY GODKNOWS MASUNDA

Field Behaviour Change Communication Officer, Feed the Future Livestock Program Zimbabwe

Artificial insemination (AI) is both a technique in which viable semen is collected from selected male and introduced into the female reproductive tract with the help of instruments. In some cases, there use of hormone therapy to induce the cow to come on heat (synchronization). It is an effective low-cost technology that has capacity to revolutionise the livestock industry and reduce importation of dairy heifers as well as genetically superior livestock animals. The success of the procedure hinges on the interaction of four factors, which act independently of one another:

A (percentage of herd numbers correctly detected in heat and inseminated) \times **B** (the inseminator efficiency percentage) \times **C** (the percentage of the fertility level of the herd) \times **D** (percentage of semen fertility) = percentage pregnancy (ABS AI Management Manual, 2008).

The performance factors percentages are multiplied and their product will invariably be lower than the lowest factor in the equation. This calls for maximisation of all the factors for optimum AI results.

The Zimbabwean AI industry involves organisations vested in cattle genetics running nucleus herd breeding centers, service providers (equipment, semen storage, AI services) and farmers who test the products before they are sold. Given that there are high cattle numbers in Zimbabwe (the majority being in communal areas); there a high demand for quality genetics. AI offers the cheapest transition from low to highly productive animals adaptable to the communal area management environment.

The Feed the Future Zimbabwe Livestock Development Program implemented by USAID through Fintrac has to date benefited 3,593 communal farmers and rural households. Beef cattle constituted 77 percent of the total number of beneficiaries while dairy households made up 23 percent. Through my experiences in practicing and promoting Al in the communal areas as part of beef and dairy breed improvement programs, I have made the following observations;

In any AI program, *heat detection and subsequent submission for AI is crucial*. Farmers need to use heat detection aids e.g. tail chalking, estrus alert detector, teaser bulls or oxen and records to improve heat detection efficiency. Farmers should invest their time in heat detection i.e. a minimum four times per day and apply the AM-PM rule. The AM-PM rule dictates that a cow should receive AI 12 hours after being observed in estrus. If a cow is seen in estrus in the AM she should receive AI that PM, and conversely cows seen in estrus in the PM should receive AI the following morning. **Inseminator efficiency** is critical and farmers should engage reputable inseminators to target 100% efficiency. The industry needs to provide skills training for inseminators to improve their efficiencies.

Herd fertility can be influenced by breed where Tuli, Boran, and Mashona breeds are highly fertile due to low metabolic demands compared to Jersey and Holsteins. Herd fertility is also a function of nutrition and disease status. Management should aim to improve nutrition and health as cow fertility increases on a rising plane of nutrition and in cow recovery from underlying health conditions. Heifer rearing should aim to achieve optimum growth rates as underweight or overweight affects fertility.

Semen handling and storage facilities need to be improved and be accessible for increased uptake of AI in communal as maintenance of a cold chain is critical in maintaining semen quality. Provision of affordable AI equipment and improved access to liquid nitrogen can improve AI uptake. The inseminators also need to be continually trained on proper semen storage, handling and insemination procedures.

Bull selection should be guided by the breeding objective of the farmer e.g. dairy or beef, and the parameters that the farmer wants to improve on or correct. Reputable semen suppliers provide Bull Proofs containing performance information related to the bull. The farmer and the inseminator need to align the bull merits to the expectations of the farmer.

In conclusion, AI success is based on team work and cooperation between the farmer, herdsman, inseminator, semen supplier and other industry players. With proper implementation, AI has the potential to improve the quantity and quality of our cattle herd in Zimbabwe.

Isiah Maranele of Ward 29, Chipinge district, compares his 5- month-old AI Red Brahman calf (left) with 16-month old (second from left) and 4 month old (right) indigenous breed calves



Image provided by Fintrac

The Importance of Public-Private Partnerships for Agricultural Development

BY DULY HOLDINGS

Crop losses both pre and post-harvest continue to present an estimated 40 percent of agricultural produce from actually reaching the marketplace. There are many reasons for these shortfalls, one of them being the challenges faced by research departments in developing new innovations for increased production due to the lack of resources.

Since institutional capacities vary, isolated institutes might not be able cope with these challenges. Collaboration of these institutes can succeed better, such as that fostered by Duly Motors (Duly's) and the Department of Research and Specialist Services in the Ministry of Lands, Agriculture, Water and Rural Resettlement. The effective co-ordination, collaboration and linkage (agriculture machinery and crop research) has aided an interdisciplinary approach that is critical to sustainable development.

Commissioning of Tractors

and Field Equipment by Duly Holdings - Since 1902, when the very first vehicles were rolled into our beautiful nation by Duly Motors, without a day's rest Duly's has not ceased to contribute towards the Zimbabwean Gross Domestic Product (GDP) and participate in capacity building from agriculture to other sectors. In a recent event, Duly's commissioned tractors and field equipment to the research institutes in the Department of Research and Specialist Services (DRSS). The Honourable Minister for Lands, Agriculture, Water and Rural Resettlement has been mandated by His Excellency, the President Cde E.D. Mnangagwa to oversee the growth of this



Mr C. Marimo the managing Director of Duly Holdings showing the Ministry of Lands, Agriculture, Water and Rural Resettlement officials a New Holland tractor with a Fieldking ripper mounted on it

economy from its core of Agriculture. The event delegation included;

-The Honourable Minister for Lands, Agriculture, Water and Rural Resettlement: Air Chief Marshall (Rtd) Perence Shiri who was represented by his Deputy Honourable Douglas Karoro.

-The Permanent Secretary of Lands, Agriculture, Water and Rural Resettlement: Dr. J. Basera.

-The Director of Crops Research: Dr. D. Kutywayo.

-The Acting Director of the Procurement Management Unit: Mr. R Makoni.

-The Members of the Ministry of Lands, Agriculture, Water and Rural Resettlement.

Duly's has partnered with the Ministry in every step of the way. The event presented the research institute with state-of-the-art New Holland tractors, custom Ploughs, Disc Harrows, Ridgers, Farm Trailers and Mowers for use in research protocols. This equipment will compliment the innovations, technologies, solutions and crop husbandry methods being formulated to increase provision of the much-needed food to the national basket which has more than 14 million Zimbabweans.

About Duly's

Duly Holdings, is there as a mechanisation partner, ready to provide technical support in this agenda. It is bringing in the FieldKing brand equipment through a partnership with an Indian company which will result in Technology transfer. This partnership has numerous benefits to the economy in terms of downstream labour, adding more opportunities in developing the economy.

Customer Care Unit

Duly's trains the research team staff on equipment and tractor maintenance so as to enable better use of the equipment and to maximise benefit usage. Furthermore, Duly's customer touch-points are well equipped with trained manpower to

deliver best in class support. In an event of a tractor breakdown either the trained staff will be to solve the problem or be can call in to Duly's mobile service team for remote assistance. This means that tractors only need to go into the workshop for major repairs.

'Where the right partners come together in the right way, the synergies they achieve lead to results well beyond the reach of any one organization alone'

Image provided by Duly Holdings



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Caring for Chickens Over Winter

BY A HAMARA FARMER

The winter season brings with it a new set of challenges for poultry farmers. Finding ways to protect the birds from the cold can be difficult. Given that every season comes with its woes, this article focuses on caring for your chickens in winter.

Temperature - Your feathered flock is not as cold resistant as it looks. Pre-heating the brooder 48hours prior chick placement is a must so that heat is regulated all around. Unlike most other small animals, baby chicks are unable to live for any length of time without an additional source of heat other than their own bodies. Under natural condition, broody hens rear and give provision of the needed warmth. Therefore, in a commercial setting it is of paramount importance to build a good insulated brooder as good insulation counts for the little temperature fluctuations.

Chicken houses must be sealed to prevent cold drafts and optimize air flow. Whilst keeping the space warm. It is also important to have ventilation, the last thing you need is suffocating chickens. Adequate heating capacity is needed to maintain temperature and enough oxygen at the same time i.e. do not sacrifice ventilation for warmth. Litter/bedding, temperature should be a minimum of 32 degrees; hence, good litter quality also is important.



Lighting - Light is one major issue that affect poultry productivity in winter. Egg production slows way down at this time of year because of the decreased daylight and due to the fact that chickens tend to go through their annual molt in the late autumn. Supplemental light will counteract the lack of daylight, stimulating the hen's pituitary gland which is what signals her ovaries to release her egg. Hens need about fourteen hours of light a day to produce egg. In many areas of the country the sun is only giving about eight hours of light in these winter months. However, many poultry farmers believe that supplemental lighting, forcing your hens to continue their egg laying cycle, is very bad for their internal systems and can cause severe health problems. While these theories are unproven, the potential repercussions can be enough to scare many farmers off supplemental lighting. The possible side effects of using wrong light intensity and too many hours above the recommended can include; vent prolapse, egg binding, and ovarian cancer. These conditions are all fatal if not treated. The most obvious negative side effect of a coop light is the potential for a fire, especially if using a heat lamp. Insecure wiring, possible sparking, and simply having a heat source near dry sawdust and hay can be very dangerous. Coop fires have devastating effects and any lighting system should be set up with every precaution to avoid fire.

Any change to a chicken's natural rhythms can potentially cause your hens stress. Stress can lead to health consequences, but even before that it will have an effect on your hen's behavior. Cannibalism and hen-pecking are more common in stressed chickens. If you are lighting your coop, make sure to start

Article continues on page 14...

Hy Line layer chicks

Ventilation - Good ventilation is of great importance so as to allow a good flow of oxygen especially in a highly packed chicken coop. It is therefore important to find a good balance of keeping out cold air without compromising air flow too much. A good airflow also has an advantage of reducing build-up of ammonia, as well as in keeping litter/bedding dry. Vents should be placed towards the roof of the coop where the cold air is not able to flow directly onto your birds. This method vents warm, moisture-laden air and replacing it with cooler, drier air thus keeping humidity down and preventing mould from growing in your birds' bedding.

An example of broiler chickens on dry bedding





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To sustain and promote success

gradually, to build up your hen's tolerance, and use only a 25- or 40-watt bulb. It is strongly discouraged to leave a white light on 24 hours; chickens will perceive it at as sunlight and will not sleep during the night. Use a light only to get about 14-16 hours of "sun" for them a day, and if you're using a timer double check that it turns off and on at appropriate times.

Feed and Water - During winter it is important to consider heated waterers and ensure chickens get good supply of water constantly. Provide feed and

water to the birds more often as energy needs increase in winter. Animals expend a considerable amount of energy to stay warm and will eat more feed. Complete layer feeds provide all the energy hens need.

Stress - Reduce stress in the flock by checking your stocking density, look into the amount and quality of bedding, give adequate ventilation and correct temperature. Have the correct numbers and type of drinkers and feeders. Continue offering activities in the chicken coop. Hens will spend more time in the coop, so offer enrichment through logs, sturdy branches or chicken swings.

COMMERCIAL BIRD MANAGEMENT

Medication - Careful on the use of antibiotics. Vaccinate religiously according the correct vaccination program.

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Images provided by a Hamara farmer

Sasso T Rainbow chicks



ASCITES – A DAUNTING WINTER DISEASE IN BROILER CHICKENS

In the last few years, ascites has become a major cause of wintertime mortality in broiler chickens. It is a syndrome that causes an accumulation of fluid in the abdominal cavity, "water belly", as a consequence of heart failure. Ascites is a production syndrome related to rapid growth rate and high oxygen demand or poor brooding conditions. This condition is more scientifically know as pulmonary hypertension syndrome. Ascites is not a disease caused by a virus or bacterial organism, although disease may also be one of the predisposing factors. Multiple factors such as ammonia build up, poor ventilation, cold temperatures, rapid growth rate, high density diets, vaccine reactions, respiratory diseases and aspergillus, act to produce a tissue level oxygen deficiency disease. Whilst it is recognised that this condition is a frequent occurrence associated with fast-growing birds, adhering to the care tips stated in this article helps minimise its occurrence; as there is no treatment for it only prevention through management.

By General Beven Mundida

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COVER

Tobacco seedlings at Ripple Mead Farm, image provided by Eloise Maloney.



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