

BOSCHVELD VILLAGE CHICKEN MANAGEMENT GUIDE



CREATING THE FOOD BASKET FOR AFRICA



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THE BOSCHVELD MANAGEMENT PRINCIPLES:

- If you can't afford it, live without it.
- The best fertilizer for land is the footprint of the owner.
- Don't let the cheque book's balance exceed that of the deposit book!
- If you can't be the best manager, employ the best manager you can afford. The best managers are usually above average in all respects but are often outstanding in none. They are usually both numerate and financially minded, keen, adaptable and have the ability to correctly interpret and apply advice and seek to improve their knowledge without a bias of preconceived ideas. *David T Johnson. The Business of Farming*



RIGHT:

Boschveld farm sells about 250 000 Boschveld Chickens annually.

FAR RIGHT:

Mike Bosch of Bela-Bela is an accomplished Beefmaster, Boran and Boschveld breeder.



BOSCHVELD CHICKENS: *best birds in the business*

Mike Bosch from Bela Bela is one of the most respected Beefmaster and Boran breeders in South Africa. But his latest success has come in the form of the Boschveld chicken. Mike started breeding this indigenous chicken 12 years ago. More than 2 million of these birds, known for their resilience in even the harshest conditions, have been sold throughout



Bela Bela
LIMPOPO

Mike Bosch, renowned Beefmaster and Boran breeder from Bela-Bela in Limpopo, started breeding the Boschveld chicken 12 years ago. The Boschveld is derived from three indigenous breeds - the Venda, Matabele and Ovambo - and is the only synthetic indigenous breed in Africa.

Many people in deep rural areas in South Africa still have no access to electricity. They can't go to the supermarket and stock up on frozen chickens. Their only protein preservatives are salt, wind and sun, and they need a resilient chicken that can fend for itself, staying alive until it's time to get eaten. This is the type of chicken I farm with. The Boschveld chicken is a tough African chicken capable of producing under any circumstances, living off whatever is available.

When I first started breeding the Boschveld chicken, I got 100 chickens and put them with my cattle in the veld with shelter, food and water for three months. About 35% of the chickens died, but I used the 65% that survived to breed a resilient chicken that could survive on very little in harsh African conditions, because **the reality is only the strong survive in Africa.**



ABOVE: The Boschveld is derived from three indigenous chicken breeds – the Venda, Matabele and Ovambo – and is the only synthetic indigenous chicken breed in Africa.

BOSCHVELD CHARACTERISTICS

- The chickens survive and produce on what nature can provide, with only a small amount of maintenance feed to boost production.
- They withstand Africa's varying climatic conditions and keep producing well in free-range conditions.
- They have inbred hardiness, which helps them to withstand poultry diseases.
- Cocks are strong, aggressive and have noble formation.
- Hens are very fertile with strong, healthy offspring that grow well.
- Egg production starts at 20 weeks.
- No expensive housing is needed to make a success of a poultry operation.
- Cocks are ready for slaughter at 12 weeks old, depending on nutritional levels.
- The meat has a good flavour.

A NO-FUSS POULTRY BREED

The selection criteria were based on breeding a hardy, no-fuss chicken with all the good production and survival traits of the Venda, Matabele and Ovambo breeds. When Mike was certain of the chickens' hardiness, he started selecting specifically according to colour. This was after receiving compliments on the colouring.

Mike sells about 250 000 Boschveld chickens annually and has sold upwards of 2 million of the breed throughout Africa. His 2 400 breeding hens keep his 30 000-egg incubator full all year round, and the Boschvelds are bred and grown according to stringent free-range standards.

A THREE-WAY AFRICAN BREED

The chicken originates from a three-way crossing that takes place under severe natural selection. It's a hybrid of three native breeds originally introduced onto the Bosch's 7000 ha Mantsole Ranch near Radium in the Limpopo Province, to keep their fine beefmaster herd clean of ticks. But these are not just ordinary African chickens. They are in fact Venda chickens and Ovambo chickens (obtained from the ARC-AII [Animal Improvement Institute] and Fow for Africa programme at Irene) and Matabale chickens, obtained in September 1999 from a village between West Nicholson and Bulawayo in Zimbabwe.



Although all three hardy, adaptable and ideal for true free-range conditions, each has its own distinctive character.

The Ovambo chickens is smaller in size and is alert and agile in order to avoid predators. It is an aggressive forager, even hunting and eating rodents, lizards and small snakes. It roosts in trees at night to escape predators. The Venda chicken is bigger, lays tinted eggs and is an excellent brooder with good mothering instincts. The Matabele is large for a traditional African chicken, and Mike was particularly struck by its exceptional fertility and high hatching percentage.

NATURAL SELECTION

These chickens inhabit a free-range system under the African sky with extreme weather, food bottlenecks, predators and other mortality factors. To survive, breed, produce eggs, and pass their genes on to the next generation, they are exposed to a process of merciless natural selection.

**“WHERE OTHER CHICKENS FEAR TO ROOST,
THEY FLY IN! ”**

Another exciting possibility dawned on Mike - to produce a high quality protein source from the eggs and meat at minimum cost to the farmer.

A GENETIC PROTOTYPE

Mike Bosch keeps no secrets about his chickens and freely provides breeding material. He supplies producers with technical advice and has trained a number of them on his farm. If one benefits, we all benefit. Mike's ability to sustain the selection of replacement hens under genuine free-range conditions on the veld with cattle ensures that Boschveld breeding stock will always be superior to that supplied by other breeders. Pieter Bosch, who has now converted Mike's innovative ideas, summarizes succinctly: “If agriculture is to survive in Africa, we farmers must pull together, teach one another and learn from one another. We must never keep our ideas to ourselves”.

PREPARATION



- Check all equipment
- Numbers/working condition
- Are they working?
- Drinkers-flooding/little amount of water
- Feeders-broken/too high for chicks
- Thermometers - broken (false reading)
- Curtains - (holes) mend - do you have enough?
- Gas - did you order enough?

BROODING TIME

Top Tip
#1

KEEP THEM COMFORTABLE!

- Critical 72 hours
- Set temp at the right level





Top Tip
#2

LOOK AFTER THEM YOURSELF!

BY DIRECT INSPECTION:

- Chicks must be dry and clean with clear and bright eyes.
- Homogeneous - without deformities.
- Quiet, alert and inquisitive.
- Good uniformity.
- Navel must be clean and sealed.
- Count dead on arrivals.

Imagine you are the hen - what would you do for your chicks to keep them alive?

- Keep them warm
- Give them food
- Give them water
- Give them space (natural)
- Give them fresh air (natural)
- Give them love (natural)
- Give them light (minimum 20LUX - reading light)

Top Tip
#3

CHICKS ARE LIKE YOUR OWN BABIES - THEY NEED SERIOUS ATTENTION!

BIOSECURITY:

Is your house thoroughly cleaned after washing and disinfected following a clean-out of litter?

A major requirement for successful early chick development is minimal challenges from bacteria, viruses, mycoplasma, molds and parasites.



- Optimal temperature and humidity are essential for health and appetite development.
- The temperature should be monitored frequently and regularly; at least hourly in the first five days and regularly thereafter.
- Thermometers should be sited at chick level.
- Allow sufficient air exchange to prevent the accumulation of harmful gases such as carbon monoxide (from oil/gas/wood heaters placed inside the poultry house), carbon dioxide and ammonia.





- Build houses east/west.
- Curtain management is very important to be able to keep the birds cool.
- Fresh air should always be available in the brooder area.
- Litter will be drier.
- Moisture is removed.
- Maintain the balance of oxygen, carbon dioxide and moisture.

CURTAIN

- Open curtain from top to bottom to avoid drafts
- Very little air movement is required up to day 5 of age

LIGHTING

- Lighting intensity and position should be properly managed
- Lights can be used to hold birds in the area where food and water is available.
- Brooder area should have enough light for the chicks to see food and water.
- Avoid shadows or dark areas in the brooder area.

Top Tip
#4

BROODING IS THE ART OF SCIENCE!
Do not overdo things in the brooder area!

- The chicks will tell you everything you need to know.
- Any changes you make they will show you if they like it or not.
- Talk to the chicks...listen to their advice...do they agree?
- All they need is TLC.

TEMPERATURES



- The young chicks have a narrow band of HEAT tolerance.
- Chicks are easily overheated after the first 3 - 4 days of brooding.
- Overheated chicks move away from heat source and from other chicks.
- The temperature should be constant.
- Maintain a temperature of between 20°C and 30°C at all time during the first 14 days.

NIGHT TEMPERATURES

Night temperatures go down to the extent of chilling the birds.

Top Tip
#5

WATCH OUT! Temperatures drastically drop from about midnight.

SIGNS OF OVERHEATING

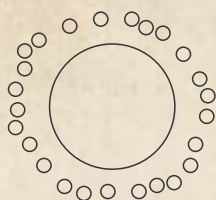
- Early distress can often lead to irreversible cannibalism and feather pecking.
- Chicks spread away from heat sources.
- Chicks can be noisy, listless and reluctant to move.
- Feed and water intake will be affected.
- Feathers will deteriorate.
- Pasting of vents (overheating + temperature fluctuations)
- Dehydration, listless, panting (heads stretched, beaks open), dry shanks and chalky material on abdomen.
- Lying with belly in litter
- GROWTH RATE WILL BE NEGATIVELY AFFECTED.

- Check the min and max temps of the brooder house.
- Do you have enough heat for the night?
- Check your area or house for temperature.
- Careful of draughts / wind.
- Check where mortalities are.

DIAGRAM % BIRD DISTRIBUTION UNDER BROODERS

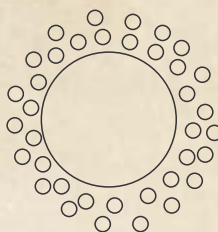
TEMPERATURE TOO HIGH

Chicks make no noise.
Chicks pant, head
and wings droop.
Chicks away from
brooder.



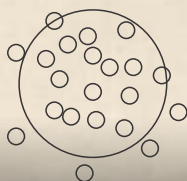
TEMPERATURE CORRECT

Chicks evenly
spread.
Noise level indicates
contentment



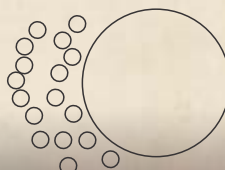
TEMPERATURE TOO LOW

Chicks crowd to
brooder.
Chicks noisy, distress
calling



DRAUGHT

This distribution
requires investigation
influenced by
draught - uneven light
distribution - external
noises





FROM DAY OLD TO 4 WEEKS OLD

- They are very fragile - treat them with love and care.
- Put an infra red light +_ 1 m from the floor.
- Put wood shavings as bedding - not fine sawdust
- Put down 5l or 2l water fonts with some electrolytes or booster in the water.
- Use plastic sheeting to place easily accessible food on the ground.
- Place large pan of food or water near infra red light.
- There must be enough space for chicks to move away from light.
- One infra red light is enough for 200 (two hundred) chicks.
- Feed Starter meal.
- After 7 (seven) days during the day put infra red lights off when temperature is higher than 20 degrees Celsius.
- Allow sunlight in on chicks, this will develop feathers much quicker.
- Keep to inoculation program.
- Feed AD LIB till (4) four weeks old.
- Refresh water 3 times daily with cool water.
- After 14 days let them outside during the day but allow access back into the cage if the brooder area set up allows it.
- If chicks start to peck each other you need to add more feeding trays or pans.
- Remove sick or weak chicks and keep them separate until healthy and strong.
- Do not allow strangers into the chick houses.
- Keep good bio-security in tact.
- Visit chickens often to see if all is in order.
- For 21 days, put Virukill in drinking water (10ml per 10l of water).
- NB: Allow sunlight on chicks, this will help develop feathers much faster.

FROM 5 WEEKS OLD TO 17 WEEKS OLD

- Keep 10 (ten) chickens per square meter.
- Put a bit of wood shavings on floor.
- Feed as per below table data on feed:

0 - 4 weeks	AD LIB
5 - 6 weeks	50g per day
7 - 8 weeks	60g per day
9 - 10 weeks	70g per day
11 - 12 weeks	80g per day
13 - 14 weeks	90g per day
15 - 16 weeks	100g per day
17 - 18 weeks	110g per day
Layers	120g per day

Pullet Starter Mash
 Pullet Grower Mash
 105 Layer Mash

1. Keep vaccination program up.
2. Give vitamin boost once every 3 (three) weeks.
3. Give Virukill in water every 2 (two) weeks - 10ml per 10l.
4. Separate all sick and weak chicks - sick bay.
5. Feed using Pullet Starter Mash.
6. Put back after strong and healthy.
7. Visit cage often to check for any strange habits i.e. sneezing, cough etc.
8. Remove all bedding every 6 (six) weeks and lay fresh and new bedding.
9. Disinfect cage floor.
10. Give cool water at all times.
11. Wet 1/3 of feed.



VACCINATIONS



AGE	VACCINE	ADMIN	TRADE NAME	SUPPLIER
DAY 1	MARECKS	Hatchery S/C INJ	Marecks Rispens	Predelivery
DAY 1	ND/IB	Spray	Hipraviar B1/H120	Predelivery
DAY 7	ND/IB	Water	Ma5+Clone30	Nobilis
DAY 12	IBD	Water	Gumboro D78	Nobilis
DAY 18	IBD	Water	Gumboro D78	Nobilis
DAY 24	IBD	Water	Gumboro D78	Nobilis
4 WKS	FOWL POX	Wing Stab	Avipro Pox	Avipro
	ND/IB	Water	Ma5+Clone30	Nobilis
5 WKS	ILT	Nosedrop	ILT	Avipro
6 WKS	MG	Neck (subcut)	Avipro 104	Avipro
	ND/IB	Water	Ma5+Clone30	Nobilis
7 WKS	BOSCHVELD CORYZA	Left Breast	Corvac 4	Nobilis
10 WKS	DEWORM	Water		
11 WKS	ILT	Nosedrop	ILT	Avipro
11 WKS	AE+POX	Wing Stab	AE + Pox	Lohmann
13 WKS	BOSCHVELD CORYZA	Left Breast	Corvac 4	Nobilis
14 WKS	ND+IB LIVE	Water	Ma5+Clone30	Nobilis
14 WKS	MG	Neck (Subcut)	Avipro 104	Avipro
16 WKS	ND LASOTA	Water	LaSota	Immunovet
18 WKS	ND/IB KILLED	Right Breast	Talovac 201	Immunovet

Repeat water based ND every 12 weeks

Deworm prior to transfer and thereafter every 8 weeks.



THE PROCESS OF GIVING A VACCINE TO OUR CHICKENS:

- Giving weakened germs (disease causing agents) to chickens so that they can be ready to fight real infection.
- Vaccines are living things which can be killed by sunlight, high temperatures, detergents and disinfectants.
- Ensure vaccines are protected from the above - most of them require a temperature of between 2 - 8°C.
- Most vaccines are given through drinking water.
- Vaccinate in the cool hours of the day - before 10:00 and after 15:00.
- Just before vaccination, thirst birds for one hour during summer times and 1,5 hours during winter months.
- Make sure there are adequate drinkers.
- 0-3 week 60 birds/drinker, 4 - 6 weeks 50 birds/drinker.
- This is meant to ensure that each bird takes enough vaccine
- Always use plastic containers when mixing vaccine with water (heavy metals on metal containers can kill the vaccine)
- Vaccines can be killed by heavy metals or chlorine in water.
- We can also recommend dyes such as Aiblu
- Calculate the amount of water required.

This formula is only a guide:

Water (L) = $\frac{\text{number of birds} \times \text{age (days)} \times 1.5}{1000}$

- Calculate the amount of dye.
- After adding the above, wait for 10 minutes then add your vaccination and stir the water well.
- Dip vaccine vial in water and open it under water.
- Fill all the drinkers and turn them once so that birds don't scramble for fewer drinkers.
- Never freeze vaccines.

WARNING: Do not buy vaccines from vendors or unlicensed dealers, you may be buying "dead" vaccines which will not work. When buying detergents or disinfectants, make sure you are buying those that are approved for use in poultry. Always read the label and follow instruction when dealing with chemicals.



- Many microbes die in 2-3 days.
- Under certain conditions some can live much longer in an empty chicken house.

DISEASE	LIFE SPAN
IBD	Months
COCCI	Months
CHOLERA	Weeks
MDV	Weeks
NCV	Days - weeks
SALMONELLA	Weeks
MYCOPLASMA	Hours - days

PATH TO SUCCESS

- Maintain proper sanitation.
- Wash hands regularly.
- Use footbaths and change/replenish regularly.
- Showering facilities.
- Full protective clothing for staff and visitors.
- Disinfect vehicles/equipment entering farm.
- Clean and disinfect entire house upon depopulation.
- Rest the fowl - run for at least two weeks.
- Proper and quick disposal of mortality.
- Proper manure disposal.

NUTRI FEEDS

Die Formule vir Sukses
The Formula for Success

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Top Tip #6

USE THE RIGHT FEED!

- Do you have enough feed?
- Ensure you have the correct feed.
- Do you have enough feeders (plates)? Feeding space?
- Are they working (design?)
- Are they accessible?
- Place 50 chicks per feed tray.
- Place 50 birds per tubular feeder.
- Wet 1/3 of the feed like Pronutro. Low early feed intake leads to poor early weight gain and low 7-day weights.
- Feed to be consistently of good quality and readily available.
- Chicks must have free access to feed.
- Chick trays and supplementary feeders need to be filled often and watched for feed wastage.
- Supplementary feeders for the first 7 days to be of light coloured polythene.
- Supplementary polythene to cover 50% of brooding area.
- Chick trays to be provided at rate of 1/100 chicks.
- Feed trays and fonts to be placed in the chick's comfort zone, where floor temperature is not less than 28°C.
- To achieve 95% crop fill by the morning after placing.



- Water is the most essential nutrient for the birds.
- Water to be regularly tested for total bacterial numbers
- To institute a regular waterline cleaning and flushing program.
- Chlorination done correctly is the most effective way of sanitizing drinking water.

Top Tip
#7

SUPPLY COOL, FRESH WATER

ARE YOU SUPPLYING ENOUGH WATER TO THE BIRDS?

- Do you have enough water?
- Do you have enough drinkers (cups)?
- Do you have enough drinking space?
- Are they working/good design?
- Are they accessible?
- Is the temperature correct?
- Place 50 chicks for 4litre chick font.
- Keep water cool by keeping tanks under the shade or by painting them white.



WATER CONSUMPTION RATE



BELOW CHARTS SHOWS DAILY WATER CONSUMPTION

AGE IN WEEKS	LITRES/100	LITRES/CHICK
1	0.8 - 1.1	0.011
2	1.1 - 1.9	0.019
3	1.7 - 2.7	0.027
4	2.5 - 3.8	0.038
5	3.4 - 4.7	0.047
6	4.5 - 5.7	0.057
7	5.7 - 6.8	0.068
8	6.1 - 8.0	0.08
9	6.4 - 9.5	0.095
10 - 15	6.8 - 10.2	0.102
16 - 20	7.2 - 15.2	0.152
21 - 25*	9.9 - 18.2	0.182
Over 25*	15.2 - 20.8	0.208

Higher temperatures tend to elevate consumption by 1,9 liters per 100 birds.

THINGS THAT CAN AFFECT WATER CONSUMPTION:

- Drinker line height, too high or too low.
- Air locks in the water system.
- Water line pressure not correct for age of bird.
- Clogged water filters or drinkers.
- Dramatic change in light intensity.
- Frequent changes in day length.
- Feed changes or feed outages.
- Water treatments / additives.
- Birds are sick.
- Too many birds per drinker





SPACE

Summer:

30-35sqm DOC

25/sqm 7 days of age

15/sqm 14 days of age

10/sqm 21 days of age

Winter:

30-35sqm DOC

25-30sqm 7 days of age

20/sqm 14 days of age

15/sqm 21 days of age

10/sqm 28 days of age

Top Tip
#8

DO NOT DECREASE SPACE!

OVERCROWDING WILL RESULT IN:

- Slower growth
- Shortage of equipment
- Feeders / drinkers
- Litter dirty (wet)

LITTER

- Provide adequate litter
- 7 - 10 centimeters in the brooder area
- Wet litter makes room colder
- Wet litter can produce ammonia build up which will stop the chicks from feeding correctly and leads to respiratory infections.



THE PRINCIPLES OF DISEASE CONTROL

There are three ways of disease control.

1. Biosecurity
 2. Vaccination
 3. Treatment
- Biosecurity involves preventing or minimizing contact between the poultry and the germs that cause disease.
 - It is the cheapest way of disease control.
 - Vaccination increases the chicken's ability to fight disease.
 - It is another cheaper way of controlling disease and works well with biosecurity.
 - Biosecurity and vaccination are preventative methods of disease control. Prevention is the “fireguard approach”.
 - Treatment is the use of drugs on chickens after a disease outbreak, in other words it is the “fire brigade approach” - a very expensive method of disease control.

BIOSECURITY

The word biosecurity can be split in two - bio and security.

- In this case bio stands for germs that cause disease in poultry.
- Security stands for preventing or guarding against.
- Biosecurity is germ security

Biosecurity is the practice of preventing germs from getting in contact with chickens.

- Infectious diseases are caused by germs so by preventing germs we prevent diseases from attacking our chickens.
- So we do not want to bring our chickens to a place where there are germs and we also do not want to bring germs to our chickens.



- Biosecurity is similar to placing a security guard at your premises to prevent theft.
- The difference is that in this case you are guarding against the “invisible”.
- Germs steal from our poultry business by killing our birds, reducing weight gain and increased cost of medication.

Top Tip
#9

**TWO WAYS TO PREVENT THIS ARE:
BIOSECURITY AND VACCINATION.**

HOW DO GERMS TRAVEL?

Germs get free rides from:

1. People
2. Vehicles
3. Equipment
4. Water
5. Air
6. Rodents
7. Flies
8. Litter beetles and worms



WEAPONS USED IN BIOSECURITY



- Wash hands often.
- Barriers such as fences to control access by vehicles, people and animals.
- Use detergents such as special soaps for washing equipment and fowl runs.
- Disinfectants are chemicals that kill germs: these chemicals will not work on a dirty surface so we first need to clean surfaces with a good detergent.
- Minimizing Germs.
- Protective Clothing.
- Gum boots.
- Overalls.
- Only for onsite use.
- Water.
- Some germs stay in the water and cause sickness in chickens.
- Don't give dirty water to chickens.
- Water from a dam must be treated with chlorine.
- Water for poultry must be safe to drink by humans.



- Rodents eat and waste feed.
- Rodent droppings and urine contaminate feed.
- Rodents are vectors of disease eg. salmonellosis.
- They damage cables, timber etc.
- Rodents are also of public health significance transmitting diseases like salmonella, bubonic plague, etc. that cause sickness in humans.

RODENT CONTROL

**Top Tip
#10**

BEST PEST CONTROL = OWLS & CATS

- No poison!
- Sealing off entrance points properly to prevent rodents from entering.
- Make your plot cat friendly environment for kittens.
- Put up owl boxes for owls to breed.
- Keep grass short around buildings.
- Close all underground holes.



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LAYING HENS MANAGEMENT

- Put in cage with outside range.
- 10 chickens per square meter inside.
- Range can be any size.
- From 18 (eighteen) weeks old give each laying hen 120g layer mash.
- Either place 210 liter drums (cut open in length) on ground and fill half full with wood shavings or use a laying box.
- One half drum is enough for 50 (fifty) layers.
- Put one tube feeder per 50 (fifty) hens.
- Put one bell drinker per 100 (one hundred) hens or 2 x 12 liters manual drinkers.
- Feed every day at the same time.
- 1/3 of the feed must be mixed with water and given wet to hens. Make the feed like Pro-nutro porridge must be "sloppy".
- Keep good record of daily egg production.
- Remove all sick and weak layers and keep them separate until strong and healthy.
- Keep vaccination program up to schedule.
- De-worm every 4 (four) months with medication (use something like Hypirazine) in water - always give cool water .
- Detox with liver flush (something like Bigen40).



MANAGEMENT DURING THE EARLY DAYS

During the first few days after housing it is important to stimulate feed intake, e.g. by:

- Feed often to create activity and interest in the feed.
- Feeding when the trough is empty.
- Moistening the feed.
- Vitamin supplements.
- Pullets should never lose weight after transfer.
- They should continue to gain weight, or at least maintain their body weight.

LITTER

Type and quality of the litter are important for the hens and the house climate.

Different materials may be used:

- Wood shavings
- Sunflower husks
- Coarse wood chips
- Wood shavings should be dust free and not chemically treated.
- A litter depth of 1-2cm is sufficient.



FLOOR EGGS

The incidence of floor eggs can be reduced by incorporating the following experiences in the design of the laying house and the management of young flocks:

Top Tip
#11

NEST BOXES IN DARK AREA - NOT IN SUNLIGHT.

- Draughty nests disturb the hens during egg laying.
- The entrance to the nest must be clearly visible.
- Light colour litter material is preferable to dark material.
- Feeders and drinkers should not be near to the nests.
- Drinking water in the vicinity of the nests entices the hens to this area.
- Feeders and drinkers should not create attractive areas for egg laying.
- Hens should not be distributed while laying i.e. no feeding at this time.
- Do not carry flock inspections during the main morning laying period.
- Floor eggs should be collected from early morning, several times a day.



LAYING NESTS

Laying nests should be easily accessible to the hens, preferably located in a dark location. It is recommended to keep the nest out of direct sunlight. During the laying period, the nests should be kept half full with sawdust. Build houses East/West.

Top Tip
#12

**USE LIGHT COLOUR SAWDUST AS TO
NOT STAIN EGGS.**





PARASITES

- Roundworms and threadworms occur in hens and are transmitted via the droppings. If necessary the flock have to be dewormed.
- Red poultry mites are a major problem in alternative production systems. They damage health and reduce the productivity of flocks. Heavy infestations can cause high flock mortality (by transmitting diseases).
- Infestation causes distress in the flock (feather pecking, cannibalism, depressed production).
- Continuous monitoring of the flock is therefore advisable.
- Dip with *Baticon* dip 500ml in 600lt of water.

Common hiding places of mites are:

- In the corners of nest drums
- Under the next drum covers
- On crossbars of perches
- On dropping box trays
- In corners of walls
- Inside the perches (hollow tubes)

Mites should be controlled with insecticides or other suitable chemicals. It is important that the treatment reaches all hiding place of the mites. More important than the amount of chemical applied is their thorough and even distribution. The mite and beetle treatment should begin as soon as the flock has been depopulated, while the laying house is still warm. Otherwise the pests crawl away and hide in inaccessible areas of the laying house. Spray in the morning so that chickens can dry before sunset. Add lime-sulfate to dip to kill mites - 500ml to 600lt of water.

Boschveld Compost - Nature's Gift

Factors influencing growth:

1. The soil type
2. Quality seed genetics
3. Rainfall quantity
4. Temperature
5. Amount of TLC



HEAR NATURE GROW

BOSCHVELD
COMPOST

“The only
product derived
from nature and
turned into profit”

*Apply 1 x 10kg bag to 30m³

For orders, contact +27 83 282 9447 or
+27 79 740 7244 or email compost@boschveld.co.za

- In free range housing systems a normal house and perchery is combined with an outdoor enclosure (8 hens per m²) for the hens.
- This facility must be available to the birds during the day
- Popholes along the entire length of the building provides access to the exterior.
- Use 210lt drums cut open in length for nesting boxes.
- 2x Half drums are enough for 100 hens.

Top Tip
#13

CHICKENS MUST HAVE 5 FREEDOMS:

1. To shelter
2. To fresh water
3. To good food
4. To natural behaviour
5. To a healthy environment





THE MOST IMPORTANT POINTS

- Never let chickens run out of water or food.
- Never use mouldy maize in your layer feed.
- Build houses East/west.

OTHER VERY IMPORTANT POINTS

- Keep your layers cool at all times (keep nest drums out of the hot afternoon sun).

Also

- Keep water cool and clean.
- Always mix your feed ingredients well when using concentrates.
- Never allow your layers to become stressed.
- Good ventilation assist disease control.
- Keep the layers' living area neat and clean / Flies and rats cause disease.
- You can add a small amount of green leaf material (lusern or lawn cuttings) to safe feed and improve egg quality.
- Try to keep layers away from other chickens to avoid disease.

MANAGEMENT

- Attention to detail is very important when caring for your layers.
- Good management = lots of eggs.

Ensure you layers have been vaccinated against the following:

- | | |
|---|--|
| • Infectious Bursal Disease (Gumboro IBD) | • Fowl Pox |
| • Newcastle Disease | • Coryza - Boschveld strain |
| • Infectious Disease | • Egg Drop Syndrome |
| | • Mycoplasma Respiratory Infections (Mycoplasma Gallisepticum & Mycoplasma Synoviae) |

Also ensure that:

- They have been dosed for worms. We recommend that you deworm every 4 months if your layers are not in cages.
- Vaccinated for Newcastle every 8 - 12 weeks.
- Not more feed than 130g per day. When you first get them, they will eat about 100 grams per day. This will increase to approximately 120grams/per day after a few weeks. If they are finishing what you are giving them then you should increase the amount slightly. If they are not finishing then reduce a bit. You



FEATHER CONDITIONS

Feather Loss:

- Loss of feathers can be caused by mite infestations. These cause irritation and result in scratching and loss of feathers.
- Deficiency of certain nutrients and stress factors such as overcrowding can also result in pecking among chickens (cannibalism), leading to the loss of feathers.

Clubbed Down:

- This condition is the result of failure of the feathers to rupture from their sheaths. The underlying cause is vitamin B2 (riboflavin) deficiency.

SKIN CONDITIONS

Parasitic infestations:

- Different parasites can be seen on the head and body of the chickens. These parasites appear as black, brown or red “spots” on chickens. These are mites, fleas, lice and ticks.

Pox:

- Pox is a viral disease that is transmitted by mosquitoes. Pox sores are seen on the unfeathered areas such as the head, neck, feet and legs. The sores begin as red pimples which develop into pimples filled with fluid (vesicles) and then pus (pustules). Finally, as the pustules burst open, crusts or scabs form.

Bites/pecking:

- Any stress-related factor such as overcrowding or bringing new birds into the flock will cause pecking.
- Salt deficiency can also be a cause.
- Chickens can also be seen with bite wounds from rats.



Pale (anaemic) skin:

- Chicken mites survive by sucking chickens' blood. With excessive mite infestation a lot of blood will be lost, resulting in an anaemic chicken with pale skin, wattles and comb.

Yellow skin:

- Yellow skin can be normal or abnormal. Chickens that are fed yellow maize as part of their diet have a yellow skin.
- Abnormally yellow skin is mostly seen in the case of the disease called Aegyptionellosis, which is caused by a blood parasite that infects the red blood cells.

Blue skin (cyanosis):

- This is seen in any severe condition of the bloodstream when bacteria (septicaemia) or viruses (viraemia) are circulating. In diseases such as Newcastle disease, wattles may sometimes show a bluish discoloration.

LEG CONDITIONS

Scaly legs:

- This condition is caused by mites and is frequently seen in backyard chickens. The legs are rough and scaly. The mites burrow under the skin of the legs and cause thickening and roughening of the scales.
- This conditions can be treated by dipping the legs in an acaricide.

Fractures:

- Broken bones are often seen as a result of trauma.
- Deficiency or imbalance of calcium and phosphate causes bones to break easily.



Swollen joints:

- The germ that usually causes swollen joints in chickens is *Mycoplasma synoviae* and *Staphylococcus aureus*. The most commonly affected joints are the hocks.

Marek's disease

- This disease can be seen in two forms. The one affects the internal organs whereas the other affects the nerves. When the thigh and leg nerves are affected, chickens lie on the ground with one leg backwards and the other turned forwards. Skin lesions are sometimes seen with Marek's disease.

Curled Toe Paralysis

- This condition may be seen in chicks if their feed has been low in vitamin B2. The toes frequently curl inward and they may be unable to stand.

Rickets

- Rickets is caused by a relative or absolute deficiency in calcium, phosphorus and/or vitamin D3 or imbalances in the ratio of these nutrients.
- Chickens with rickets walk with difficulty and have soft bones and beaks.

PREVENTION OF FEATHERS, SKIN AND LEG CONDITIONS

- Parasites such as mites and fleas can be killed and controlled by using powder chemicals, e.g. carbadust. Chicken houses can also be sprayed with a chemical such as 10% malasol to kill the parasites living in cracks and crevices.
- Feed a good-quality diet or give mineral supplements where indicated.

Source: Feather, skin and leg conditions, M.S.K. Mashishi

FREQUENTLY ASKED QUESTIONS



Q: How does the Boschveld chicken look?

A: The Boschveld chicken is a red-brown chicken with white feathers in-between.

Q: How do I take care of my chickens?

A: Please refer to the Rearing section on page 13 - 14 for information on taking care of the chickens.

Q: What is the price of the chickens?

A: Please view our website www.boschveld.co.za for prices or contact the Boschveld office at +27 14 112 0145 or +27 83 285 9446.

Q: How are fertile eggs packaged?

A: Fertile eggs are packaged in boxes of 6 x 30 egg trays.

**FOR ANY OTHER CHICKEN RELATED QUERIES,
PLEASE CONTACT THE BOSCHVELD OFFICE AT
+27 14 112 0145 OR +27 83 285 946.**



**FREE
RANGE
CHICKENS**



Introducing the easy assemble, preconstructed chicken cages invented by much acclaimed farmer, Mike Bosch from Boschveld Chickens.

- Each cage is fitted with solar panels on the roof to generate ample electricity need for everyday tasks such as charging a mobile phone, fitting lights etc.
- Each pre-manufactured cage comes with a selection of quality vegetable seeds.

The first stage:

- The cage is assembled and can accommodate up to 150 4-week old chickens per cage.
- Boschveld Village Chickens provide a daily supply of eggs which can be sold in the community and derive income.
- In the mean time, the chickens' manure fertilize and enrich the soil.
- After 30 days the cage and chickens are moved to the next position, leaving behind a well fertilized patch of soil.

The second stage onwards:

- The fertilized patch of soil is now ready to be turned into a vegetable garden.
- Vegetables are grown to feed the family, and can be sold to the community for extra income.
- After every cycle of 30 days, the chicken cage gets moved to a new position, leaving a freshly patch of fertilize soil to be farmed.
-

THE BOSCHVELD BREADBASKET PROJECT:

- Support and promote green energy to disadvantaged and poor communities.
- The added "green" electricity generating ability ensures the poor can stay connected to the world.
- The daily source of eggs and vegetables promotes healthier children.
- The entrepreneurial accessibility empowers the mothers of Africa.
- Professional and hands on training ensures ongoing support for new emerging markets.

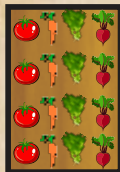
THE BREAD BASKET CONCEPT



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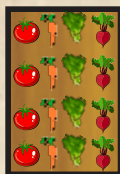
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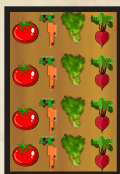
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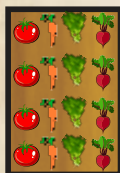
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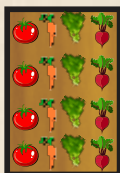
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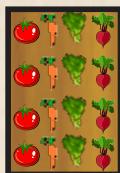
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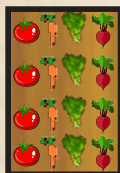
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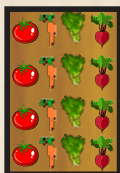
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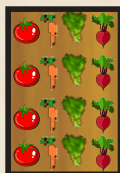
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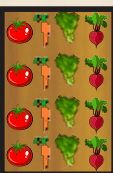
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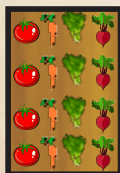
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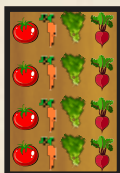
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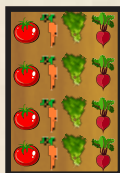
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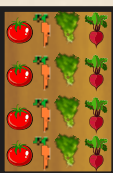
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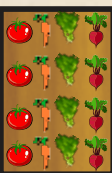
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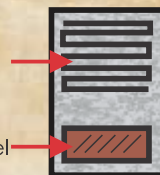
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6th month



Roof:



Solar panel

Size:

6m



3m

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FREE RANGE CHICKENS

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Website: www.boschveld.co.za



"Laugh in your life will be lengthened. For this is the
great secret of long life"