

LIONEL'S

Complete Guide to

CALF REARING



**OFFERING THE BEST GLOBALLY
RECOGNIZED VETERINARY BRANDS
IN ANIMAL HEALTH PRODUCTS AND
EQUIPMENT.**

Well-reared calves, whether heifers or beef animals, will be an asset to your herd.

Producing strong and healthy livestock is an ongoing process and one that requires detailed knowledge and care.

Calf-rearing goals include:

- development of the rumen,
- producing quality heifers that become high producing cows,
- grow beef animals to achieve slaughter weights earlier or on time, and
- raising calves in the most cost-effective way, without limiting growth.

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Colostrum

It all starts with Colostrum!

Newborn calves are very vulnerable to infections, so it is crucial for calves to receive colostrum after birth as it is high in protein, energy, vitamins, minerals, growth factors as well as immunoglobulins (IgG) or antibodies.

Antibodies help calves fight infections for the first month of life and partially up to 6 months of age, while the immune system develops. Without it, calves will fall behind from day one and be vulnerable to disease.

The three Q's of Colostrum Management:

1. **QUICKLY:** Crucial to feed colostrum within first hour of birth, and total quantity they require within 6-8 hours of birth, to ensure absorption of IgG.
2. **QUANTITY:** Quantity is linked to quality so test colostrum using a Brix refractometer to ensure calves get the correct amount of colostrum. Depending on the breed, calves should receive at least 4-6L of high-quality colostrum within 6-8 hours of birth (minimum 250g IgG per calf within 3 hours after birth or >400g within the first 24 hours after birth).
3. **QUALITY:** High quality colostrum has a higher concentration of IgG, meaning calves will absorb more antibodies when consumed. Typically, colostrum should have an IgG level of at least 50g/L.

Should a calf be too weak to consume the full amount of colostrum or be unable to suck a bottle, use a feeding tube. Test the calf's blood to ensure the antibodies have successfully transferred to the calf. Monitor growth rate one week post-weaning, at 6 months old and at breeding.



Colostrum Step-by-Step Plan:

1. Thoroughly milk the cow as quickly as possible following the birth of her calf.
2. Ensure that the colostrum is hygienically captured in order to keep germ counts as low as possible.
3. Check the quality of the colostrum with a refractometer (BRIX meter).
4. Using the table, calculate the minimum number of litres the calf must ingest.
5. Feed the colostrum to the calf as quickly as possible.
6. Store any remaining colostrum in the refrigerator for the next feed.



Refractometer

Refractometers are commonly used on the farm to measure colostrum quality and work by measuring the way light bends when it passes through a solution.



A BRIX score of 22g/dl correlates to colostrum containing at least 50g/L of IgG. In the same way, total protein prediction or BRIX scores can be used to estimate IgG in the blood of calves using a hand-held refractometer.

Concentration X volume = amount

If the goal is to provide 180-200g of IgG to the calf within 6 hours of birth, and if we feed colostrum with 50mg/ml of IgG, then it will require a minimum of 3.75L to get that amount of IgG into the calf. If the concentration is only 40mg/ml, it will take approximately 4.75L.

Don't reject heifer colostrum unnecessarily

The perception is that colostrum from first calf heifers are of lower quality, based on past experience and even research. This results in the need to replace the colostrum of approximately 40% of the calves on the farm. However, improved vaccination programs for heifers have resulted in higher quality colostrum from this group. Results may be farm specific but testing has shown that colostrum from first calf heifers meets the standard.



Deciding not to use colostrum from first calf heifers, without testing, is wasteful. Refractometers are a useful and valuable tool.

Crypto Test Kit

Now available!

Testing strips for the detection of *Cryptosporidium parvum* in bovine faeces (packs of 10).



Calf Aid

Calf Aid is a nutritional supplement specially formulated for calves to support stimulation of appetite, colostrum intake and activity in the new born calf.

Calf Aid boosts the immune system and provides essential nutrients while promoting the development of beneficial gut flora. It also prevents and reduces diarrhoea episodes and infectious disease.



Feed one 30ml tube to the back of the tongue as soon as possible after birth to each calf in the herd. Where there is a high level of infection on the farm, Calf Aid can be repeated after 5 days.

Celmanax SCP

Celmanax SCP contains four powerful technologies to improve gut health and boost immune readiness.



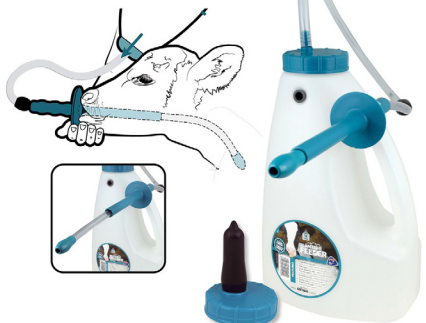
The combination of yeast cell wall structures, cell contents, and growth medium culture create a unique, functional solution. Celmanax SCP contains RFC which blocks the attachment of pathogenic bacteria to the gut wall. The interference of pathogenic bacteria attachment creates a beneficial gut environment, improving calf immunity. Additional benefits include reduced scouring, improved disease resilience, and improved growth parameters.

Add 1 g/day to the calf's milk, mix thoroughly, and feed once per day until weaning. Treat sick calves with 3 g/head/day.

Trusti Tuber

Designed by a vet, the Trusti Tuber significantly reduces calf stress and discomfort.

Large 4 L bottle with transparent flexible tube makes for easy cleaning and monitoring of flow. Fast flow even with thick colostrum, it is known to almost halve the feeding time. Stopper and calf size markers provide easy guide for tube placement and positioning.



Health

As they say, prevention is always better than cure! A well-fed cow is more likely to have a trouble-free birth and produce a healthier, more lively calf.

- feed calves adequate colostrum.
- feed calves high quality, clean milk or milk replacer.
- ensure free access to clean drinking water.
- keep vaccinations up to date.
- ensure access to high quality, palatable hard feed which includes a coccidiostat.
- decrease stress-inducing factors which can impact disease resistance, incl. transportation, sudden feed changes, poor ventilation, crowding, temperature fluctuations and draughts.
- minimise risk of exposure to bacteria, viruses and parasites by using a broad-spectrum disinfectant for cleaning and disinfection.
- incorporate biosecurity measures.
- separate sick from healthy calves - early intervention reduces the impact of disease on the calf as well as the risk of transmission to others.

Signs a calf may be ill:

- droopy ears
- poor suckle response
- calves that are cold to the touch
- standing apart from the group
- abnormal rectal temperature
- grunting, whistling or coughing
- abnormal dung (scours)
- lethargy or weakness
- sunken eyes
- reluctance to stand
- dull coat
- reduced appetite
- poor growth
- nasal discharge



Calf Scour

In South Africa, two major causes of calf losses are neonatal scour and pneumonia. You can minimize its impact on your calves by adopting basic management protocols to reduce exposure to the causative organisms and increase the calves' immunity.

Common pathogens and conditions that can cause scour:

- Rotavirus
- Coronavirus
- E.coli
- Salmonella
- Cryptosporidia
- Low colostrum intake
- Unhygienic environment
- Mixing age groups
- No cleaning protocol
- Spreading infection from feeders

NUTRITIONAL	INFECTIOUS
<p>Normal fluid exchange between blood and intestine breaks down, usually due to disruption of digestive system. Commonly caused by changes to feeding program and/or stress.</p>	<p>Caused by bacteria, viruses or protozoa and transmitted with faeces, urine, saliva, feed, secretions from eyes, mouth or nose.</p>
<p>Symptoms: pasty, soft, white or yellow dung; weight loss; general weakness; depression; death may occur; dehydration and acidosis may occur.</p>	<p>Symptoms: profuse, watery bright yellow/white faeces; blood-stained brown/green faeces (suspect salmonella); blood-stained mucus (suspect coccidia); strong, foul odor; weight loss; fever; egeneral weakness.</p>
<p>Management: avoid rapid diet changes or overfeeding; maintain regular feeding schedule; ensure adequate feed intake to meet energy needs; keep calf warm; match fluid intake to fluid losses with milk and electrolyte fluid therapy.</p>	<p>Management: good colostrum management; strict hygiene practices; keep calf warm; match fluid intake to fluid losses with milk and electrolyte fluid therapy; regular observations for secondary diseases; vet consultation for antibiotic/ anti-inflammatory use.</p>

Depending on severity, treatment includes:

- Oral eletrolytes (if calf is alert and able to suck)
- Antibiotic injection (after veterinary advice)
- Intravenous drips (if calf is unable to swallow/stand)
- Isolate affected calves (to reduce disease spread)

Scour control:

- Colostrum management (10% calf's bodyweight within first 6 hours - check colostrum levels)
- Hygiene (dip navel at birth, clean calving pens, feeding equipment, etc.)
- Vaccinnation (vaccines for rota/coronavirus, e.coli and salmonella - consult your vet)
- Clean environment (no build up of bacteria - regular clean, disinfect and rest)
- If you allow suckling on dam, clean the udder to prevent bacteria that may have built up over dry period)

Early Detection

Oral Electrolytes

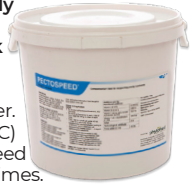
Specific Diagnosis

Pectospeed

V13575 (Act 36/1947)

Formulated to stop acute diarrhoea very fast and strengthen the body. Electrolytes prevent dehydration, whereas dextrose constitutes a source of readily absorbable energy for a depressed body. Immunity is stimulated by vitamins A, D3, E and C. Sodium bicarbonate prevents metabolic ketosis, and pectins absorb toxins from the digestive tract and prevent putrefaction in the intestines. Owing to carefully selected flavour additives, Pectospeed is eagerly drunk even by calves unwilling to drink milk due to disease.

In acute diarrhoea, withdraw milk or milk replacer. Mix 100g PECTOSPEED in 2L of warm water (38°C) and feed the calf. If needed, administer Pectospeed again. Provide calves with access to water at all times.



Rehydion Gel

V18954 (Act 36/1947)

Indicated for use in calves as an aid in correcting electrolyte imbalances resulting from digestive disturbances such as diarrhoea. Can be used without the interruption of milk feeding.

Dissolve 20ml in 1L tepid milk/water and feed 2L of solution twice a day for 2 days or more if needed.



Life-Aid Xtra

G1898 (Act 36/1947)

High energy oral rehydration therapy for treating scours in calves. This electrolyte powder supports the stabilisation of water and electrolyte balance.

Mix 83.7g Life-Aid Xtra in 2L of water and feed twice daily.

For animal use only. Active ingredient: Sodium citrate. Zero withdrawal period. Reg. holder: Lionel's Veterinary Supplies, 7 Isotope St, Bellville, 7530



Nutrifizz

V21869 (Act 36/1947)

Effervescent hydration tablets to restore fluid and salt balance in calves suffering from diarrhea. Contains 50% lactose as well as pre- and probiotics.

For additional energy boost and supporting resistance, dissolve 1 tablet in 1L of lukewarm water (40°C) once a day, at least 2 hours after the first feeding.

At first signs of diarrhea/dehydration, dissolve 2 tablets in 2L of lukewarm water. Once time administration instead of milk. Thereafter, start building up milk feedings again.



Pneumonia

Common in weaned calves and caused by viruses and bacteria, such as:

- IBR
- BVD
- RSV
- PI3

Onset is rapid and it spreads quickly, causing these clinical signs:

- Dull and off feed
- Nasal discharge
- Coughing and mouth breathing
- High temperature (>39.5°C)
- Ears sagging or flicking (sign of mycoplasma causing fluid on ear)

Treatment includes isolating sick animals and treating with an anti-inflammatory and broad spectrum antibiotic. Vaccines are available for added protection (consult your vet).

Control calf pneumonia:

- Avoid overcrowding
- Adequate ventilation and air movement
- Avoid mixing calves of different ages in one airspace
- Vaccination
- Thorough cleansing of housing between batches
- Clean and dry bedding

Calf Bloat

Symptoms include refusal to feed, kicking at the stomach, teeth grinding and looking generally unhappy.

Risk	How to reduce the risk
Worn teats.	Change teats regularly and all teats at the same time to limit different flow levels.
Overfeeding. Calves naturally take multiple smaller feeds during the day.	Give smaller, regular feeds (automatic feeders) or follow instructions on milk powder and build up over a large period of time (max of 3L per meal).
Irregular feeding concentration due to build-up of powder on automatic feeders/scoops.	Clean scoops regularly, use scales to measure powder levels, and calibrate automatic feeders fortnightly.
Dirty equipment which allows pathogens to grow.	Clean equipment after every use to prevent bacterial build-up.
Teat height.	Check regularly that the height is 60cm and adjust with bedding.
Poorly mixed milk.	Ensure milk is mixed thoroughly before feeding.
Irregular feed temperatures.	Ensure milk is fed at 38°C.
Inadequate colostrum intake.	Test colostrum and feed 10% of calf's BM within 1 st 6hrs.

Other Common Diseases

Dehydration

<p>Mild (5%): few clinical signs; milky diarrhoea; cool ear and leg extremities.</p>	<p>Critical (8-10%): skin dents 6+ seconds; weight loss; depression; increased pulse; distinct sunken eyes; dry mucus membranes; failure to rise.</p>
<p>Depressed (6-8%): skin tents 2-6 seconds; sunken eyes; depression; dry mouth and nose.</p>	<p>Coma (10-15%): comatose; cool extremities; skin does not flatten; poor pulse.</p>

Coccidiosis: caused by protozoa that destroy the finger-like villi in the small intestine which absorbs nutrients. Worst cases will have bloody scours but most calves don't show any visible signs except a lower growth rate. Calf feeds should contain a coccidiostat to aid in prevention, and in high-risk situations, a liquid coccidiostat added to milk until calves start consuming enough hard feed.

Worms & parasites: can be minimized by keeping calves on fresh, leafy pasture ahead of the herd and shifting frequently. Drenching should commence 14 days after weaning and continue every 3 weeks, depending on conditions. Lice should be monitored and treated as needed.

Naval infections: can occur within the first 24 hours of birth due to overcrowding and bruising. Infection can spread to the liver and leg joints.

Joint ill: symptoms include a hot navel cord and swollen painful joints, making it difficult for the calf to walk. Prevented by spraying the navel cord with iodine. Treated by a vet.



Hygiene

Calves weak immune system makes hygiene essential for calf rearing.

- Keep pens and bedding **dry** and have enough straw, preferably to cover the calf's legs which allows the calf to nest.
- **Do not overstock** pens as this reduces airspace, makes bedding wetter and improves the chance of pathogens passing from one calf to another.
- **Clean feed equipment** correctly (see below).

Clean feeding equipment after each feed to remove bacteria build-up from surfaces. Do not use hypochlorite to clean as residues could get trapped in teats and is harmful to young calves.

- Rinse feed **buckets** and teats (disassembled) in hot water, soak in hot liquid detergent, scrub, wash with hot water, rinse again and dry upside down.
- Clean **mechanical mixers** with warm soapy water and a stiff brush. Rinse with cold water and let dry.
- Wash **computerised feeders** twice a day. Use an alkaline tank cleaner to break down milk fat. Follow manufacturer's cleaning instructions.
- Clean **calf housing** after each batch of calves, dependent on housing design. Pressure wash thoroughly, disinfect and leave to dry before adding new batch of calves.



Kenosan

Ultra foaming, strong alkaline cleaner, perfect for calf housing.



Virocid

An extremely concentrated bactericide that is safe for people, animals, equipment and the environment.



NRCS/8054/279855/1322

Kenocox

A broad spectrum bactericide, effective against excreted endoparasites and bacteria. The missing link in coccidiosis & cryptosporidiosis control!



NRCS/8054/279855/1351

OptiZorb

Bedding additive that absorbs up to 100% of its weight in moisture, reduces odour and starts killing bacteria immediately and up to 24hrs.



Kenolit

Ready-To-Use drying powder for housing and animals with high drying capacity and no chemical reaction.

Calving

It's important to know when and how to assist at a birth and should only be done by the trained and the experienced.

Assistance might be required when an animal is straining but no part of the calf (except perhaps the feet and/or nose) is showing after 2 hours. Also, if rest periods between labouring last longer than 20 minutes and if the cow/calf are showing signs of stress/fatigue.

Using chains/ropes require careful placement and should be done in a manner that doesn't injure the calf. The pulling power of calf pullers can break leg bones or vertebrae or permanently injure the cow. Chains and ropes should be thoroughly cleaned and disinfected between uses.



Obstetrical Calf Chains

Stainless steel (150cm). Hooks available.

NB: Not for use with mechanical calf pullers as the chain link can do serious damage to a calf's leg and chains may break under excessive force. Calving chains corrode over time, even stainless steel chains, if left lying in antiseptic solutions too long. Wash chains after use and store dry to prevent corrosion.



Universal Calving Ropes

Made from nylon and adaptable for all types of calving jacks. Delivered in pairs.

NB: Calf pullers can feature hooks for either sequential or tandem pulling. Extra care should be taken with sequential pulling not to apply excessive force. Always check that the calf is properly aligned before applying force.



Calf Puller

300kg pulling power.



Infra Red Globe & Protector

Perfect for sick calves.
Protector with quartz reflectors.



Disbudding

Cattle horns can be dangerous, therefore disbudding calves between one to six weeks of age can protect people and animals from serious injury in future. The procedure is painful so pain relief is essential - discuss options with your vet.

It is recommended to remove horn buds before six weeks of age while the horns have not attached to the skull yet and the horn bud can be felt easily.

Between six and eight weeks old, the horn bud attaches to the skull bone, a small horn forms and the sinus grows into the horn. Once this happens, dehorning increases the risk of burning the skull, exposing the sinus or leaving a larger wound.

Methods of horn bud removal

Hot iron cautery is the most effective method and used by most farmers. Calves should be disbudded by hot iron between the ages of one to six weeks old.

Caustic paste is risky as it can spread into eyes, causing painful burns. Scoop/amputation should not be used as it leaves a large open wound and risks bleeding, an infection and disease.

Post-operative care

The wound must be kept dry for 24 hours after disbudding. Check calves daily for signs of infection or bleeding. After sedation, wait until calves are fully alert before feeding. If any calves are slow to recover, contact your vet.

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**Copper Fire Type
Dehorner**
LVS01419



Cadac Gas Dehorner
LVS01415



Barnes Dehorner 13"
Metal LVS01423
Wood LVS01422



Dehorning Paste
LVS03117



Feeding

Curious how to reach an ADG of 1kg? Optimal calf rearing results in healthy calves and high performing heifers, leading to a productive, healthy herd. A premium calf milk replacer is crucial for good calf rearing.

Kalvolac calf milk replacer contributes to excellent growth and health with these unique ingredients:

- HIGH QUALITY WHEY PROTEINS for quicker digestion. Whey contributes to roughage and concentrate intake which supports rumen development and prevents weaning dip.
- 40% of spray dried fat is highly digestible COCONUT OIL. This contributes to 50% reduction of fecal disorders compared to 20% or less coconut oil included. In addition, coconut oil has antimicrobial properties.
- IMAGRO is a combination of prebiotic (GOS), probiotic and organic acids that has antimicrobial properties and contributes to optimal gut flora. GOS (Galactoligosaccharides) is also used in infant nutrition.
- 20% FAT because fat is important for the supply of energy for the young animal.

Kalvolac CAIR contains a mix of herbs and essential oils that contributes to a healthy respiratory tract:

- 33% less respiratory discomfort
- 33% reduction of medicine use for respiratory health
- 15% increase on concentrate intake
- 10% growth in calves

What is accelerated feeding?

Accelerated feeding programs excel in long-term benefits. Due to the faster growth rates, accelerated heifers reach their breeding weight 20-30 days before traditionally fed heifers. Therefore, these heifers will be having calves earlier, producing more milk in their lifetime and during their first lactation.

Also, it has been found that there can be a decrease in the number of heifers on the dairy farm which, according to calculations, can increase profit per cow. Increased milk production per lactation also proves to increase profit per cow.



Suggested plan

Mixing: Mix at 45 - 55°C and feed at 40°C.

Feeding: Allow access to water, barley straw and dry feed after day 7, slowly increase ad lib feeding, allow the trough to be emptied by the calves between milk feeds to stop potential bloat and to allow constant fresh dry feed.

Feeding Tips:

- Ensure adequate supply of colostrum, especially during the first 6 - 24 hours.
- Wean calves off milk when they are eating more than 1.5kg of dry feed per day.
- Mix milk at a consistent temperature every day.
- Mix milk properly before feeding and use detergent and hot water to clean equipment.
- The height of teats, troughs and buckets is very important.

Day 1	Minimum 3.7L colostrum (min. Brix 23) within 2 hrs after birth**. (In total 6-8 L within 24 hrs).
Day 2	3 x 2L colostrum
Day 3 - 7	2 x 2.5L CMR
Week 2	2 x 3L CMR
Week 3 - 6	2 x 3.5L CMR
Week 7	2 x 3L CMR
Week 8	2 x 2.5L CMR
Week 9 +	1 x 2.5L CMR

** Use a refractometer and the colostrum protocol to determine colostrum quality and the corresponding amount of liters colostrum to be fed.

Urban MilkShuttle

Robust, precise and sturdy, this liquid calf feed mixer works effortlessly on any kind of terrain and noticeably shortens the feeding process.

The three-wheel design alleviates physical strain with its automatic stop function, extremely small turning circle and puncture-resistant tyres.

The two-stage agitator allows you to feed both whole milk and milk replacement at high quantities and at the right temperature.



LVS04762 MilkShuttle MS350
LVS9999652 MilkShuttle MS250
LVS9999653 MilkShuttle MS200

Heatwave Milk Warmer

Using heat exchange technology to heat milk on demand for feeding lambs, calves and goats.

Nature intended a calf to take small meals, little and often. Heatwave Milk Warmer sits outside the pen, next to an ad lib cold milk reservoir. As the calf drinks, cold milk is drawn through the milk warmer and heated on demand, offering all the benefits nature intended.

LVS97586

Heatwave Milk Warmer

LVS03374

Spare teats



Teats and drinkers

Milk bars: 5 teat (LVS98144)/1 teat (LVS98269)

Spare teat 10's (LVS00999987)/ Colostrum teat 5's (LVS98143)



Floating teat
LVS02988



Calf drinker:
5 teat
(LVS66114)



Calf teats: Cross slot (LVS50101)/ Hole (LVS50102) /
Black LEAD (LVS01817)/ Peach Stallion (LVS009658)/
Nuflo (LVS98521)/XL pink (LVS09012)



Calf feeding bucket
8L LVS09975

Calf feeding bottle

with handle and teat, made from food safe plastic. Graduated with 250ml scale and supplied with rubber teat. Possible to adapt the teat for grains. (LVS09058)
Spare teats (LVS09012)



Feed

The growth from calf to milk-producing first calver is always as successful as the management and nutrition style applied.

Rearing of a heifer is crucial for production and income over the next 4-5 years with the most important aspects being udder development, growth rate and age at first calf - all of which are influenced by nutrition.

Early introduction to solid feed is important for replacement calf rearing because solid feed intake stimulates rumen development. Clean fresh water is required for developing rumen and rumen bacteria to be able to ferment dry feeds.

Nutriblend, a Lionel's Group company, specialises in vitamin and mineral nutrition for animals and is ideally positioned to supply correctly formulated diets for the calf. Nutriblend understands the need for properly balanced calf diets by balancing the requirements of growing young stock.



Wesfed Complete Calf 18 Pellets

A complete grower creep feed for pre-weaned beef and dairy calves.
50kg LVS97997



Wesfed Complete Calf 16 Pellets

A complete grower feed for weaned beef and dairy calves.
50kg LVS03270

Sheep & Calf Gravity Feeder

With 150kg capacity, 116cm diameter top, 94cm diameter bowl, 109cm height. **LVS66121**
+ Optional feeding grid **LVS66121**



Water

Calves perform best when fresh drinking water is freely available from birth as it accounts for up to 75% of their body weight.

Water is required to support microbial population of the rumen and promote rumen development and function. Providing water in addition to milk replacer can increase growth by 38% and starter intake by 31%.

Calves drink 1L of water a day during their first week of life, increasing to nearly 3L by 3-4 weeks old. This increases in hot weather, particularly in temperatures above 25°C, to maintain hydration and normal body function. Scouring calves will also consume more water. Providing warm water (16-18°C) during cold weather may stimulate starter intake.

Water supply location should be considered to avoid contamination from faeces and spillage that would wet the bedding material. Test water quality regularly - a Lionel's Vet rep can assist.



Klorman Solutions

Klorman is an advanced system for continuous, controlled practical dosing of solid chlorine into water systems. Chlorine treatment of water is proven in its ability to kill disease-causing organisms, remove odors, slime, algae growth and other contaminants.

Klorman 1000

A cartridge-based system. Full refill load - 11kg. 1ppm one full charge treat up to 7 million litres. Chemical options: calcium hypochlorite.
LVS00972



Klorman 2000

A chip/tablet-based system. Full refill load - 23kg. 1ppm one full charge treat up to 16 million litres. Chemical options: calcium hypochlorite, sodium dichloroisocyanurate, trichlor, bromine, teckfloc, dry acid.
LVS98502

Klorman In-Line Chlorinator

Dispenses 550g or 700g disposable refills. 1ppm a 550g refill treats up to 350,000 litres. Chemical options: calcium hypochlorite.
LVS00974



Klorman Compact with Handle

Portable, simple and safe chlorination of water systems. Connects to any standard hose. Chemical options: calcium hypochlorite.
LVS00974



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Visit www.lionelvet.co.za for details.



Disclaimer

All products mentioned herein are subject to use as per the manufacturer's instructions. If in doubt, check with your Lionel's Vet representative. This guide is not an alternative to professional veterinary and management advice and we recommend discussing the guide with your on-farm professional. Lionel's Veterinary Supplies accepts no responsibility for errors or omissions in this guide. Should you have corrections or suggestions to improve this guide, please let us know.

LIONEL'S

VETERINARY SUPPLIES