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SELEKT®



A Farmer's Guide to
Oral Fluid Therapy for Cows
Rehydration saves lives



Early intervention with SELEKT formulae reduces the costs of disease and can help maintain milk yields.

SELEKT Pump-Drencher

Please note the main parts of the SELEKT Pump-Drencher.

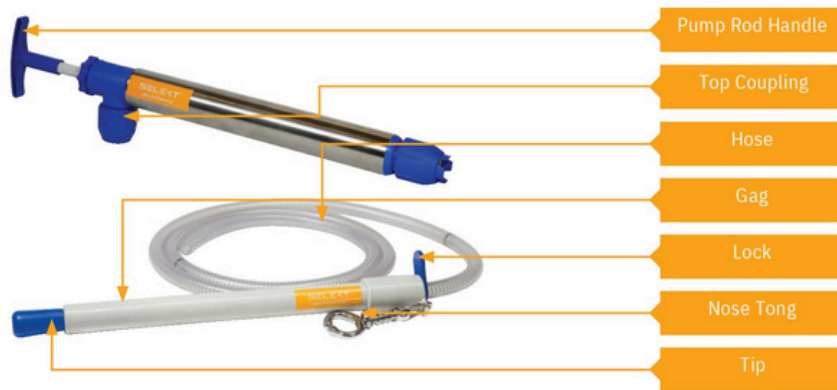
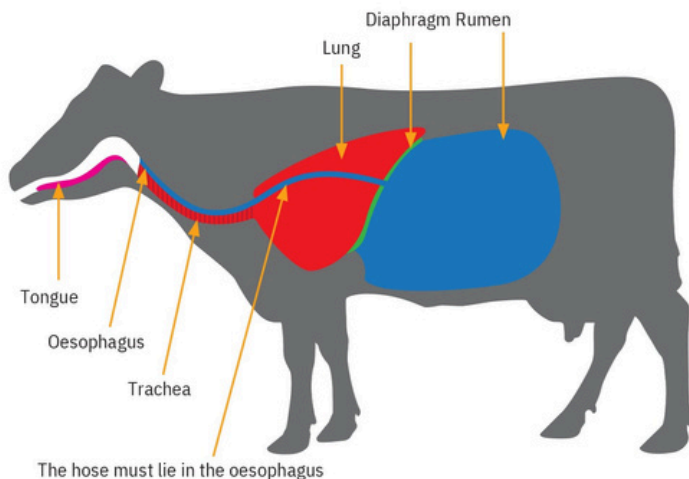


Diagram showing where to position the hose

This diagram shows how the hose from the SELEKT Pump-Drencher will safely reach the cow's rumen by passing the hose through the oesophagus. As shown, the hose must be passed through the oesophagus, not the trachea, to safely reach the rumen. This ensures the fluids are safely pumped into the rumen and not the lungs.



Please refer to **pages 8 and 9** for full instructions on how to provide oral fluids to the cow safely, using the SELEKT Pump-Drencher and SELEKT clinical-nutrition formulae.

When are oral fluids required?

Pump-drenching of dehydrated cows with SELEKT formulae reduces the risk of disease and supports recovery. There are many causes of dehydration in cows, and many cases require specific treatment. But, in all of them, it is useful to give a cow oral fluids as soon as she is seen to be unwell.

The most common conditions in which oral fluids are required are:

- Mastitis
- Acute metritis
- Ketosis
- 'Wire' (traumatic reticuloperitonitis)
- Displaced abomasum
- Loss of appetite
- Grain overload/acute ruminal acidosis
- Sub-acute ruminal acidosis
- Diarrhea
- Calving






For fresh cows, giving fluids made up with clinical-nutrition formulae reduces the risk of hypocalcaemia and ketosis. Their value is greatest for cows having twins, difficult calving, dystocia, retained after birth, forced extraction and a history of milk fever. It is also good for cows entering their second or later lactation, cows with a body-condition score of >3.75 at calving, or where there is an increased incidence of left displacement of the abomasum in the herd.

When deciding what volume of fluid to give, assess the cow using the scorecard on **page 4**.

Assessing the severity of dehydration - a scorecard for farmers

This guide is intended for cows more than three days in milk.

Feature	Score		
	0	1	2
Positioning	Standing 	Sternally recumbent (& stable) 	Laterally recumbent 
Eyes	Normal	Sunken (<8mm)	Very Sunken (> 8 mm)
Eyelid Skin Tent	Returns almost instantly (< 0.5 seconds)	Returns quickly (0.5 - 1 second)	Returns slowly (> 1 second)
Inside Mouth	Warm + moist	Cold + Wet	Cold + Dry

Interpretation of the cow's scores:

All score 0 + EATING	=	One sachet SELEKT Rolites in 20 litres of warm water
All score 0 + NOT EATING	=	One sachet SELEKT Ruminat in 20 litres of warm water
Score 1 in any category + EATING	=	Two sachets SELEKT Rolites in 40 litres of warm water
Score 1 in any category + NOT EATING	=	One sachet SELEKT Ruminat + One sachet SELEKT Rolites in 40 litres of warm water
Score 2 in any category	=	Consult your SOP for the right course of action



It is important to choose the right SELEKT formulae to meet the cow's needs. These are set out below. For more information, consult your vet.

The SELEKT formulae are intended for delivery into the rumen, using a SELEKT pump-drencher.

1. In cases of mild dehydration, use one sachet of SELEKT Calplus, SELEKT Ruminant or SELEKT Rolites in 20 litres of warm water. In cases of moderate dehydration, use an additional sachet of SELEKT Rolites in an additional 20 litres. In cases of severe dehydration, use two additional sachets of SELEKT Rolites in an additional 40 litres. Never use two sachets of SELEKT Calplus or SELEKT Ruminant and never use the two products together. Do not give more than 60 litres of fluids.
2. In cases of acute rumen acidosis, one sachet of SELEKT Elevate should be used in 20 litres of warm water for adult cattle and proportionately less for immature animals.
3. SELEKT Glycerol Plus should be given with at least an equal volume of warm water and preferably with 10 times its own volume or more. When used with a solution of another SELEKT formula, no additional warm water is required.

	SELEKT Elevate	SELEKT Calplus	SELEKT Glycerol Plus	SELEKT Ruminant	SELEKT Rolites
Acute rumen acidosis <u>or</u> Sub-acute ruminal acidosis	✓				
For fresh cows <u>or</u> Following Caesarean section		✓	± ✓	✗	✗
Diarrhea caused by mycotoxins or bacterial infection					✓
Dehydration or endotoxaemic shock caused by mastitis, metritis, traumatic reticulitis, hydrops, etc.					✓
Inappetence in early lactation				✓	
Reduction in the risk of ketosis		✓	✓		
Recuperation from ketosis			✓		✓
Following correction of left and right displacement of the abomasum			± ✓	✓	✓
Reduction in the risk of left displacement of the abomasum		✓			
Reduction in the risk of milk fever / hypocalcaemia		✓			
Poisoning caused by acorns, ragwort, water dropwort etc.					± ✓

✓ indicates that a formulae should be used for best practice

✗ indicates that a formulae should absolutely not be used

± ✓ indicates that the formulae may be given in addition to the formulae that has a ✓ but it is not needed for every case

How to use the SELEKT Pump-Drencher safely

Take advice from your vet before using the SELEKT Pump-Drencher for the first time.

Step 1: Preparation

Assemble the SELEKT Pump-Drencher by attaching the hose of the drencher to the top coupling of the pump, with the white washer in place on the hose. Fill a SELEKT bucket with 20 liters of warm water and stir in one sachet of the appropriate formula. If a cow requires 40 liters, prepare a second bucket of 20 liters or refill the first one. Draw the hose through the gag so that the blue tip lies against the end of the gag. Open the nose tong.



Step 2: Insert the gag into the cow's mouth

Standing on the right-hand side of the cow, pass your left hand over her nose. Open her mouth and insert the gag (as shown in the picture here). Close the nose tong to secure it.



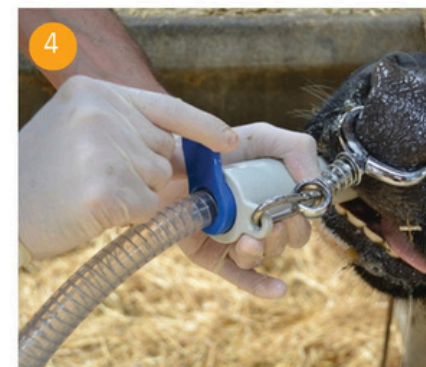
Step 3: Pass the hose down the esophagus and into the rumen

Turn the cow's head slightly to the right and advance the hose slowly through the gag. Passing it slowly allows the cow to swallow the tip of the hose. Continue to pass the hose through the gag until 1-1.5 meters of hose remains outside the cow. If the hose is in the correct place, you can often visualize the tip on the left-hand side of the neck as it passes down the esophagus. Please refer back to page 2 of this guide for additional information.



Step 4: Lock the hose in the gag

Lock the hose in position in the gag by turning the blue lever at the end of the gag until it tightens.



Step 5: Check that the hose is in the esophagus

Palpate the cow's neck along the top of her trachea (windpipe) on her left-hand side. If the tube is in the esophagus, you should feel two firm tubes: the trachea, and the esophagus above it. The esophagus will feel firm only if the hose is inside it. If you are not sure that you can feel two firm tubes, do not use the pump. Turn the blue lever counterclockwise to release the hose, withdraw it through the gag and start again at Step 3.



Step 6: Pump-drenching

Once you have felt the firm esophagus with the hose inside it, you can start pumping. Using steady, even strokes, pump the fluid into the rumen.

Step 7: Remove the gag

When all the fluid has been delivered, loosen the blue lever and draw the hose back through the gag. It is important to do this before removing the gag, otherwise the cow can chew and distort the hose. Release the nose tong and remove the gag from the cow's mouth.



Step 8: Hygiene

Wash the equipment with warm soapy water, no hotter than 50°C. We recommend that the pump should then be disinfected with hypochlorous acid or chlorhexidine, which have no corrosive effect on the equipment. Bleach may be used as an alternative but is liable to cause a little corrosion. Dairy hypochlorite and FAM30 should not be used as it can damage the equipment.

SELEKT® Equipment

SELEKT Pump

For administration and aspiration of fluids. To be used for adult cattle with a SELEKT Drencher or a SELEKT Collector.



SELEKT Drencher

For administration of fluids to adult cattle with a SELEKT Pump.



SELEKT Collector

For collection of rumen liquor from adult cattle with a SELEKT Pump for sampling or transfaunation.



SELEKT Junior Drencher

For administration of fluids to small breeds of cattle, calves and yearlings of 150 kg to 500 kg. To be used with a SELEKT pump.



SELEKT Mini Drencher

For administration of fluids to calves, sheep and goats. To be used with a SELEKT pump.



SELEKT® Formulae

SELEKT Calplus

For reduction in the risk of milk fever and ketosis in freshly calved cows. Contains no potassium so does not block the absorption of magnesium and contains hydrolyzed yeast to support the rumen flora when the ration changes.



SELEKT Ruminat

For inappetent cows, with potassium to compensate for anorexia and hydrolyzed yeast to support the rumen flora and increase propionate production.



SELEKT Elevate

For acute ruminal acidosis. Contains magnesium oxide, the most potent rumen ant acid.



SELEKT Rolites

For dehydrated adult ruminants. A formulation of dextrose and electrolytes.



SELEKT Glycerol Plus

For the reduction in risk of ketosis and faster recuperation from ketosis. It contains a combination of glycerol and propylene glycol for a rapid and sustained effect on blood glucose concentration. It contains hydrolyzed yeast to support the rumen flora and increase propionate production.



SELEKT Calcivit

For the reduction in risk of milk fever. An easy-to-use calcium drench with magnesium, that does not contain phosphorous or potassium.



SELEKT®

DIAMOND CITY
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SELEKT Clinical Nutrition Formulae

Key Points for Cattle Vets and Producers

SELEKT ROLITES

For Dehydrated cows and ewes. A formulation of dextrose and electrolytes including calcium and magnesium, specifically designed for adult ruminants

Key Points

- Alkalosis, hypochloraemia, hypokalaemia, and hyponatremia are commonly seen in severely dehydrated cattle, and are associated with mortality
- Sodium is included in SELEKT ROLITES to retain water in the extracellular-fluid compartment.
- Alkalosis is the more common acid base disturbance observed in dehydrated cows. SELEKT ROLITES contains sodium chloride to correct chloride-depletion alkalosis.
- Potassium chloride is included to correct hypokalaemia and help correct alkalosis
- Calcium and magnesium are included at physiological concentrations to prevent further dilution of these electrolytes in the rehydrated cow.
- Dextrose (glucose) is included to make it palatable. After rapid rehydration by pump drenching, rehydration can be continued by allowing the cow to drink a solution of SELEKT ROLITES of her own accord
- To be administered in 20L lukewarm water.



SELEKT CALPLUS

To supplement a cow before or after calving with calcium and magnesium

Key Points

- SELEKT CALPLUS provides 108g of calcium per does in the form of calcium propionate which contributes to serum calcium concentration over a 24-hour period.
- Calcium propionate is also a valuable substrate for glucogenesis
- SELEKT CALPLUS provides 14.6 grams of magnesium. This covers the daily requirement of the down-calving cow, with some surplus for correction of hypomagnesaemia
- Contains yeast to improve the rumen flora
- SELEKT CALPLUS contains no potassium or phosphorus, both of which have been shown to increase the risk of milk fever.



SELEKT RUMINATE

Supporting a cow that is off feed

Key Points

- Contains calcium propionate, which will correct hypocalcemia and provide glucogenic energy substrate
- Contains potassium to reverse hypokalemia, which is a common finding in in-appetent cows and cows affected by a displaced abomasum
- SELEKT RUMINATE contains 50g of yeast in each sachet to promote the multiplication of cellulolytic bacteria and the utilization of lactate, and reduce the production of lactate.
- Contains magnesium to stimulate cellulose digestion, which will in turn increase appetite.
- There are anecdotal reports that genetian root, which is included in SELEKT RUMINATE promotes appetite.
- To be administered in 20L of lukewarm water



SELEKT GLYCEROL PLUS

Rapidly glucogenic formulation for reduction of the risk of ketosis in dairy cows and twin lamb disease in ewes. Also for ketosis recuperation. Contains glycerol and propylene glycol for a quick and sustained effect on blood glucose concentration.

Key Points

- SELEKT GLYCEROL PLUS contains two sources of energy to utilize two different glucogenic pathways.
 - propylene glycol gives a sustained release of energy.
 - glycerol, which has a similar calorific value to propylene glycol but is much less toxic, provides a rapid release of energy.
- SELEKT GLYCEROL PLUS contains yeast, the constituents of which stimulate growth of bacteria that utilize lactate and digest cellulose
- A single one litre dose of SELEKT GLYCEROL PLUS given in 10 litres of water is usually sufficient for a quick and sustained effect on blood glucose concentration
- It is important to give SELEKT GLYCEROL PLUS in water because it has been shown that glycerol is a glucogenic only when given in water. Administering water is also beneficial as a ketotic cow will be dehydrated.



SELEKT ELEVATE

For acute rumen acidosis. Contains magnesium oxide and sodium bicarbonate to correct rumen acidity, dry yeast to support a favorable rumen flora, and ispaghula husk to protect the rumen epithelium

Key Points

- SELEKT ELEVATE contains magnesium oxide, a powerful acid-consuming agent.
- Sodium bicarbonate is included as a buffer to prevent the pH of the rumen liquor from rising above 6.5.
- Lactic acid reduces the activity of cellulolytic bacteria. Yeast is included in SELEKT ELEVATE to stimulate the growth of bacteria that utilize lactate and digest cellulose.
- Ispaghula husk increases the expression of heat-shock protein 25 which protects epithelial cells.
- Acidotic animals will be dehydrated. Giving SELEKT ELEVATE in 20 litres of water will rehydrate the animal



SELEKT CALCIVIT

For reduction of the risk of milk fever and subclinical hypocalcaemia.

Key Points

- Calcium chloride is highly soluble and increases serum calcium concentration within 30 minutes. Calcium propionate has a more sustained effect on serum calcium concentration which can still be detected 24 hours after its administration, and its bioavailability is 100%.
- Each dose provides 50 g of calcium – more than any other bottle-drench or bolus.
- The calcium is provided from two sources, one absorbed rapidly, the other with a longlasting effect still detectable 24 hours later.
- Like a DCAD diet, the formulation acidifies the blood, helping the cow to release stored calcium from her bones
- Each dose provides more than half the down-calving cow's daily requirement for magnesium, for optimal absorption, and mobilization of calcium.
- Vitamin D3 is included, ensuring that a cow without a good appetite still receives sufficient vitamin D3 to absorb calcium from her gut.
- SELEKT Calcivit contains 10,000 IU of vitamin D3. This hormone stimulates calcium absorption from the intestine and will increase calcium absorption when vitamin D intake limits it.

