

Postal address PO Box 21, Wonderfontein, 1101 **Tel** +27 13 246 7451 **Fax** +27 86 581 9601  
**Factory cell** +27 82 904 6422 **E-mail** [admin@biominerale.co.za](mailto:admin@biominerale.co.za) **Web** [www.biominerale.co.za](http://www.biominerale.co.za)





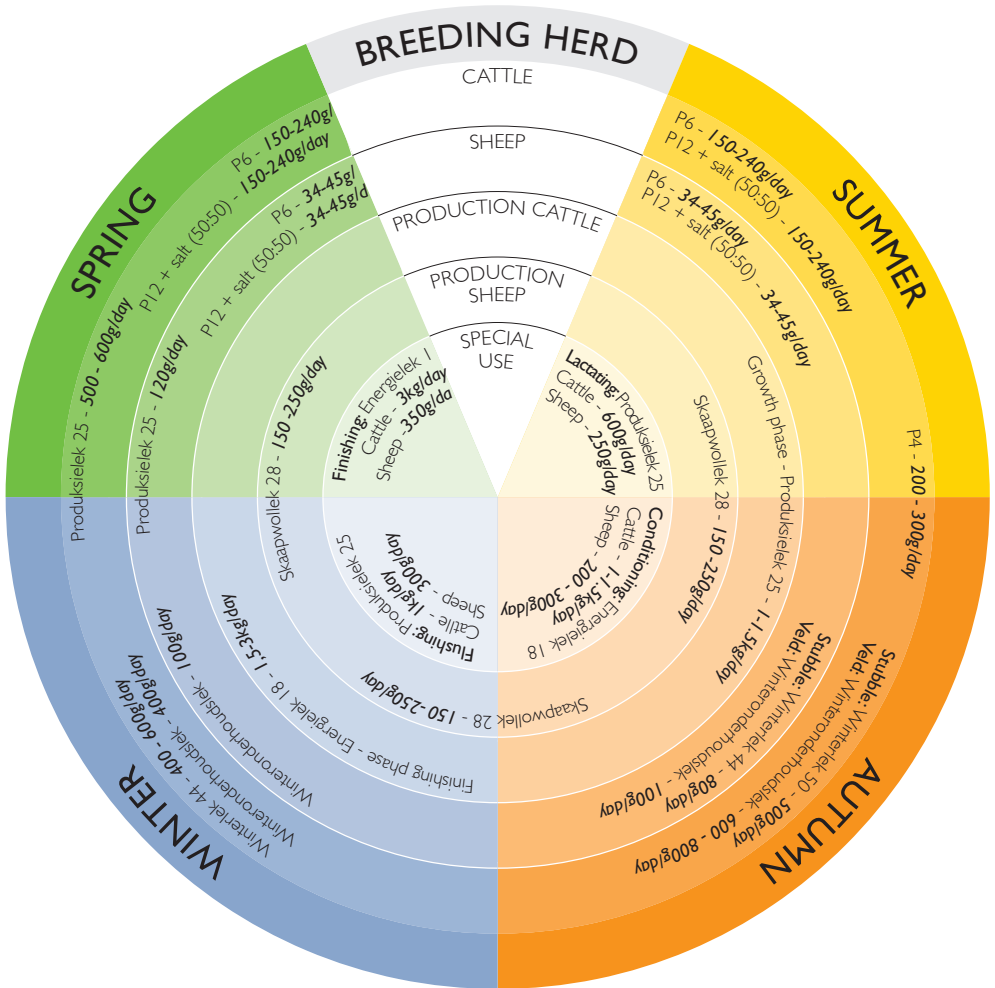
**BIO-MINERALE**  
FOR PHOSPHATES AND LICKS



ISO 9001:2000  
BIO-MINERALE (EDMS) BPK

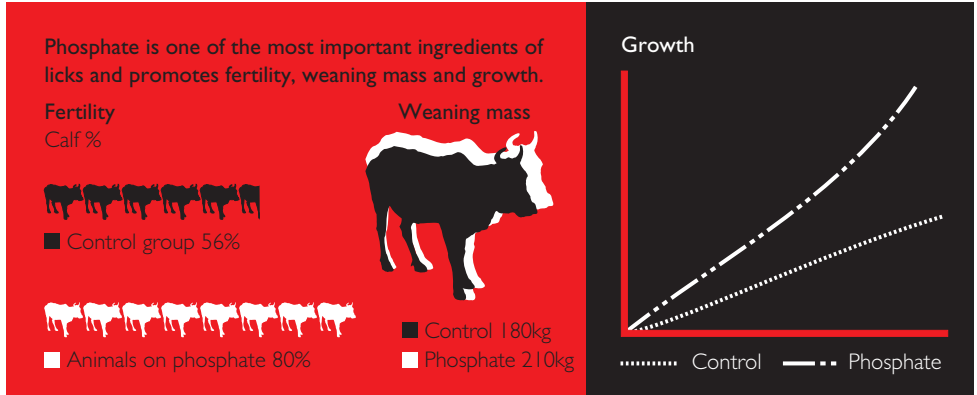


# GENERAL FODDER FLOW DIAGRAM



# GENERAL LICK PROGRAMME RECOMMENDATION

## SUPPLEMENTS MAKE FINANCIAL SENSE



## THE USE OF LICKS

Well-formulated licks enable you to ensure the general health and immunity of your animals and increase their production and reproduction.

Fodder-flow management is a vital part of the farm-management system. If fodder flow is managed correctly, optimal animal production is ensured at the lowest possible cost. Managing fodder flow demands practical knowledge of the physical farm environment and the possibilities in terms of the veld's grazing capacity, production potential and history of field husbandry. This knowledge should be coupled with a long-term strategy that aims to ensure a stable herd composition.

Dividing animals into different production groups and feeding them accordingly is the most cost-efficient way of using licks. The starting point is to have a set calving season. In this way the lick can be applied in an efficient way to fill the nutrient shortfall between what the veld supplies and what the animal requires.

Such a lick programme is compiled taking into account the seasons as well as the herd's changing feeding needs according to the individual animals' production

status. It follows then that licks should be used very strategically. BioMinerale recommends a programme containing five different kinds of licks during one production cycle.

## SUMMER (DEC – FEB)

In the Highveld, summer starts three weeks after the first rains of the season and ends at the first signs of cold, which usually appear in the middle of February. It is a brief period during which the veld is green, succulent and palatable; during this season, high intakes can be obtained from the veld. While grass is in the growing phase before germination, it has a high protein and energy content and is also highly digestible.

On average, South Africa's natural veld lacks phosphate. The best time to supplement phosphate is on green summer veld and established pastures, on which animals quickly gain body mass. The better the quality of the roughage, the better the effect obtained from the phosphate supplementation. During this time, efficiency of utilisation is also at its best.

Since the nutritious value of Highveld pastures is significantly lower in winter than in summer; the



production cycles of herds have been adapted so that the highest production times coincide with summer. Grass nutrient yield is also optimally utilised during this time. The biggest phosphate shortages also occur during this time; the shortage grows in proportion to the individual animal's production status.

During summer, the phosphate need of ruminants is approximately 8 to 12g/cow/day and 1.5g/ewe/day. Phosphate supplementation has a significant impact on cow/ewe mass, reproduction and calf/lamb performance.

### **LATE SUMMER AND AUTUMN (FEB – APR)**

---

The grass now starts maturing. Grass is typically in the period before germination (plumes have been formed, and the sheaths are still green at the base). There is ample dry matter available, and the roughage is palatable, but there is low protein availability.

If body condition is the main criterion for fodder management, big mistakes can creep in that are difficult to correct in the same season. Even if animals still seem to be consuming enough grass, they might not be getting sufficient nutrients from their grass intake. As soon as you can see deterioration in body condition with the naked eye, the animal could already have lost as much as 20kg of its body mass. An improvement can be brought about by supplementing with a low level of protein but still enough phosphate to accommodate the production cycle.

It is also ideal to adjust and prepare for winter feeding during this time. If only protein licks are fed in winter, there is a grave danger that a hunger for salt will stimulate the animals to consume too much of the licks to still the hunger. By feeding an autumn lick, the problem is avoided in a safe way, and animals can adapt to the salt and urea content. Biofos P4 is an ideal product to feed during the transition from phosphate licks to winter licks.

### **AUTUMN AND WINTER (APR – JUN)**

---

This is when the first frost falls on the Highveld, but the natural veld's condition is still very good. The natural veld's dry-matter levels are still high enough, but germination brings the translocation of nutrients from the foliage to the root system. Protein levels drop to as low as 2%, which will give way to shortages. Remember that the rumen microbes need at least 8% protein intake to remain viable. Since the stimulation of a healthy rumen micro population is of critical importance for the efficient use of roughage, it is clear that more proteins need to be fed.

Protein dominates the nutrient shortages in winter, but phosphate and salt shortages also occur. These shortages result in breeding animals losing body mass and subsequently calving/lambing in a weaker condition, which leads to lower milk production and, ultimately, lower weaning mass.

Mainly consisting of urea, non-protein nitrogen (NPN), which is used to limit animals' body-mass loss during the winter months, improves the digestibility of the winter roughage. As the roughage intake improves, the loss of body mass is limited.

For cattle, protein need from licks is between 150 and 220g/cow/day.

Licks should only be used to supplement roughage. Under normal conditions, licks should not become a replacement for roughage; replacement is deemed to start when supplementary feed comprises more than 25% of the animal's total intake.

If the animal's natural lick intake deviates from the intake prescribed for the product, it is a sign that the lick should be changed.

The type of pastures, animals, their production status, the season and the roughage quality will all combine to determine which supplementary lick should be fed.

BioMinerale supplies three winter licks: Winteronderhoudslek, Winterlek 44 and Winterlek 50.

## LATE WINTER AND SPRING (JUL – NOV)

---

The Highveld is now dry and ashen – burnt veld can often be seen. Little dry matter remains with hardening and lignification having set in. The offering from the veld is unpalatable and difficult to digest, and intakes decline severely, which leads to energy, protein and phosphate shortages.

Yet again, it is important to start energy supplementation in good time. Animals should be in good condition during mating season.

Winteronderhoudslek is an ideal product to feed during this time. Its high energy levels and natural protein content help to build condition. Produksielek 25 can also be fed now, especially to in-calf and first-lactation heifers and very thin cows.

Any animal in a demanding breeding cycle – in-calf cows in the last trimester; for instance, or lactating or growing animals or those needing to build condition for mating season – should get a production lick during this time. The intake will vary according to the available roughage, and in these scenarios it is possible that a degree of replacement has to take place for the sake of breeding.

A transition lick will also achieve good results. It is important, however, not to switch to summer phosphate licks too soon after the first rains as the animals will lose too much condition.

## WILDSLEK

---

Since game farms have limited the free movement of game over large tracts of land, the animals have had to curtail their voluntary eating patterns to plant species that are more easily available. This gives way to protein and macro and micro mineral shortages, and lick supplementation has to be introduced.

Since game animals still have an intrinsic ability to eat according to nutrient need, intakes will vary depending on the species, the condition of the veld, the climate and where the lick is placed.

Place licks on the access routes to watering holes. Since the male animals of some species sometimes tend to take control of the feeding space, it is important to provide a sufficient number of lick points with sufficient space for other animals.

Lick feeding should be provided throughout the year to ensure that animals are not scared away by the sudden provision of supplements.

BioMinerale's Wildslek 18 can be fed, and it is recommended that it be made available in good time. This means it should be supplied before the veld is weak and scarce and the animals enter a "survival phase" with the associated limitation on breeding and growth.

Always ensure that enough roughage is available.

# PHOSPHATE ELEMENTS



CLASS MONOCALCIUM PHOSPHATE 21 REG NR.V 14065 N-FF 1224 ACT 36 OF 1947

- 21% mono-dicalcium phosphate is used as raw material in all animal-fodder rations.
- Crumbly texture that limits matter loss.
- Is continuously tested by internal as well as independent laboratories to ensure consistent quality.
- The production process is controlled by a computer programme that ensures that every lot produced can be traced.

COMPOSITION	g/kg
MOISTURE (max)	20
CALCIUM (max)	210
PHOSPHORUS (min)	210
FLUORINE (max)	1.3
ALUMINIUM (max)	20

## APPLICATION

This product is suited as a phosphorus source in balanced diets for cattle, sheep, goats, chickens, pigs, horses and rabbits. Consult a nutritionist.

# PHOSPHATE ELEMENTS



**CLASS** DICALCIUM PHOSPHATE 18 **REG NR.**V 13254 N-FF 1116 **ACT** 36 OF 1947

- 18% dicalcium phosphate is especially suited as raw material in ruminant rations.
- Can be used to mix P12 and P6 licks.

<b>COMPOSITION</b>	<b>g/kg</b>
MOISTURE (max)	<b>20</b>
CALCIUM (max)	<b>240</b>
PHOSPHORUS (min)	<b>180</b>
MAGNESIUM (min)	<b>13</b>
FLUORINE (max)	<b>1.0</b>
ALUMINIUM (max)	<b>20</b>

## **APPLICATION**

This product is suited as a phosphorus source in balanced diets for cattle, sheep, goats, chickens, pigs, horses and rabbits. Consult a nutritionist.



# BIO-SOMERFOSP18

CLASS PHOSPHATE AND TRACE-MINERAL CONCENTRATE  
REG NR. V 15899 ACT 36 OF 1947

- Basically the same product as Biofos P18, but contains trace minerals.
- Is suitable as a raw material in ruminant feeds and licks.
- Can be used to mix P6 and summer licks.

COMPOSITION	g/kg
MOISTURE (max)	100
CALCIUM (max)	240
PHOSPHORUS (min)	180
FLUORINE (max)	1.1
ALUMINIUM (max)	20

	mg/kg
COPPER (min)	450
MANGANESE (min)	1 800
ZINC (min)	1 800
COBALT (min)	3
IODINE (min)	23
SELENIUM (min)	4.5

MIXING INSTRUCTIONS	Cattle	Sheep
Biosomerfos P18 (kg)	150	150
Salt (kg)	200	200
Molasses meal (kg)	80	40
Lekkonsentraat (kg)	-	40

RECOMMENDED INTAKES (g/animal/day)	Cattle	Sheep
Non-lactating	100	18
Growing, late gestation	125	22
Lactating	200	36

**P12****BIOFOS P12**

**CLASS PHOSPHATE AND TRACE-MINERAL CONCENTRATE FOR RUMINANTS**  
**REG NR.V 13148 N-FF 1115 ACT 36 OF 1947**

BAG CODE ■ ■ ■

- Contains 12% phosphate and is used as a raw material in ruminant rations.
- Contains trace minerals.
- Mix with salt to obtain P6 lick.
- Molasses acts as binding agent and increases palatability.
- Can also be used to mix summer lick.

<b>COMPOSITION</b>	<b>g/kg</b>
MOISTURE (max)	<b>100</b>
CALCIUM (max)	<b>240</b>
PHOSPHORUS (min)	<b>120</b>
FLUORINE (max)	<b>0.744</b>
	<b>mg/kg</b>
COBALT (min)	<b>6</b>
COPPER (min)	<b>300</b>
IODINE (min)	<b>20</b>
MANGANESE (min)	<b>1 200</b>
SELENIUM (min)	<b>3</b>
ZINC (min)	<b>1 200</b>

**MIXING INSTRUCTIONS**

Mix 50kg Biofos P12 with 30kg salt and 20kg molasses meal for a Biofos P6 equivalent.

**P6****BIOFOSP6**

**CLASS PHOSPHATE, SALT AND TRACE-MINERAL SUPPLEMENT FOR RUMINANTS**  
**REG NR. V 13149 ACT 36 OF 1947**

BAG CODE **\*\*\***

- Biofos P6 supplies ruminants on phosphate-poor summer pastures with sufficient phosphate levels.
- Supplies vital trace minerals in the correct ratio to phosphate.
- Inclusion of molasses ensures a dust-free and palatable product.
- Ready-mixed product that can be fed immediately.
- Improves production and on-veid conception.

<b>COMPOSITION</b>		<b>g/kg</b>
MOISTURE (max)		<b>100</b>
CALCIUM (max)		<b>120</b>
PHOSPHORUS (min)		<b>60</b>
SULPHUR		<b>25</b>
MAGNESIUM		<b>60</b>
FLUORINE (max)		<b>0.372</b>
		<b>mg/kg</b>
COBALT (min)		<b>3</b>
COPPER (min)		<b>150</b>
IODINE (min)		<b>10</b>
MANGANESE (min)		<b>600</b>
SELENIUM (min)		<b>1.5</b>
ZINC (min)		<b>600</b>
<b>RECOMMENDED INTAKES* (g/animal/day)</b>		
	<b>Cattle</b>	<b>Sheep</b>
Non-lactating	<b>100</b>	<b>18</b>
Growing, late gestation	<b>125</b>	<b>22</b>
Lactating	<b>200</b>	<b>36</b>

\* The indicated intake only serves as a guideline of the lick amounts that need to be supplied alongside adequate levels of high-quality roughage to address nutrient needs.

**P4****BIOFOSP4**

**CLASS PROTEIN, MINERAL AND TRACE-MINERAL SUPPLEMENT FOR RUMINANTS**  
**REG NR. V19828 ACT 36 OF 1947**

BAG CODE ●●●

- Summer-winter transition lick that contains urea and natural protein.
- The inclusion of a small amount of maize supplies sufficient energy to stimulate the rumen microbes for maximum fibre digestion and NPN utilisation.
- Molasses have been included to make the product dust-free and palatable and to supply energy.
- Ideal product to use as transition lick from summer to winter or as a summer lick on mature summer pastures that have already seeded.

<b>COMPOSITION</b>		<b>g/kg</b>
PROTEIN (min)		<b>200</b>
NPN as % of PROTEIN (max)		<b>79%</b>
UREA (max)		<b>55</b>
FIBRE (max)		<b>100</b>
MOISTURE (max)		<b>120</b>
CALCIUM (max)		<b>80</b>
PHOSPHORUS (min)		<b>40</b>
MAGNESIUM (min)		<b>1.18</b>
SULPHUR (min)		<b>0.7</b>
		<b>mg/kg</b>
COPPER (min)		<b>104</b>
MANGANESE (min)		<b>525</b>
ZINC (min)		<b>525</b>
COBALT (min)		<b>1.6</b>
IODINE (min)		<b>6.25</b>
SELENIUM (min)		<b>1.6</b>
<b>RECOMMENDED INTAKES* (g/animal/day)</b>		
Sheep		<b>35 - 45</b>
Cattle		<b>150 - 250</b>
Lactating cows		<b>200 - 290</b>

**WARNING**

- This animal fodder contains an NPN source and should be fed strictly according to instructions. Do not feed together with any other animal fodder containing NPN. Consult a livestock expert.
- When the transition is made from an NPN-free fodder to a product containing NPN, it is best to feed a 50/50 mixture of the old and the new product for an adjustment period of four to six days.
- Vinegar works efficiently against NPN poisoning. Mix with equal parts of water, and provide half a bottle per calf or large sheep and two to four bottles per head of cattle (1 bottle = 750ml).
- Keep this fodder out of the rain. Urea is soluble, and animals that drink such a solution can be poisoned.

\* Good quality roughage needs to be freely available at all times. The indicated intake only serves as a guideline of the lick amounts that need to be supplied alongside roughage to address nutrient needs. The lick intake can vary depending on roughage quantity and quality.



# WINTERLEK50

CLASS PROTEIN, MINERAL AND TRACE-MINERAL SUPPLEMENT FOR RUMINANTS  
REG NR. V19830 ACT 36 OF 1947

BAG CODE ■■■

- Cost-effective ready-mixed winter lick.
- Feed to cattle on high-quality winter pastures or maize stubble.
- Contains 50% protein (partially natural protein).
- Feed freely to cattle with access to sufficient dry matter, not where winter pastures are limited or of low quality.
- Prevent lick intakes that are too high.
- Molasses have been included to ensure a dust-free, palatable product.
- The inclusion of a small amount of maize supplies sufficient energy to stimulate the rumen microbes for maximum fibre digestion and NPN utilisation.
- Mix with maize meal to produce production lick.
- Supply supplementation on stubble fields, and aim for the stimulation of intake and the creation of a better environment for the rumen organisms so that effective digestion can take place. Supplementation should not be seen as a substitute for natural pastures.

COMPOSITION	g/kg
PROTEIN (min)	500
NPN as % of PROTEIN (max)	90%
UREA (max)	145
FIBRE (max)	100
MOISTURE (max)	120
CALCIUM (max)	35
PHOSPHORUS (min)	18
MAGNESIUM (min)	1.4
SULPHUR (min)	9
	mg/kg
COPPER (min)	75
MANGANESE (min)	250
ZINC (min)	250
COBALT (min)	0.75
IODINE (min)	3
SELENIUM (min)	1

RECOMMENDED INTAKES* (g/animal/day)	
Cattle	300 - 500
Sheep	Not recommended for sheep

## WARNING

- This animal fodder contains an NPN source and should be fed strictly according to instructions. Do not feed together with any other animal fodder containing NPN. Consult a livestock expert.
- When the transition is made from an NPN-free fodder to a product containing NPN, it is best to feed a 50/50 mixture of the old and the new product for an adjustment period of four to six days.
- Vinegar works efficiently against NPN poisoning. Mix with equal parts of water, and provide half a bottle per calf and two to four bottles per head of cattle (1 bottle = 750ml).
- Keep this fodder out of the rain. Urea is soluble, and animals that drink such a solution can be poisoned.

\* Good quality roughage needs to be freely available at all times. The indicated intake only serves as a guideline of the lick amounts that need to be supplied alongside roughage to address nutrient needs. The lick intake can vary depending on roughage quantity and quality.





# WINTERLEK44

CLASS PROTEIN, MINERAL AND TRACE-MINERAL SUPPLEMENT FOR RUMINANTS  
REG NR. V18846 ACT 36 OF 1947

BAG CODE ★★ ★

- This product's ratio between natural protein, NPN and energy makes it ideal for a variety of veld types.
- Mix with maize meal to produce production lick.
- Can also be fed to sheep.
- Winterlek 44 is especially suited to the early winter months, and it can be followed with a winter maintenance lick.
- NPN levels are not too high, which makes it a safe product.
- Mix with Biofos P6 to produce a transition lick from summer to winter (autumn).
- Winterlek 44 contains a combination of sugar and carbohydrate energy with additional sulphur to stimulate the microbes. This composition stimulates maximum protein synthesis and releases high levels of energy so that animals can be sufficiently maintained on extremely dry pastures and dry old stubble fields.

COMPOSITION	g/kg
PROTEIN (min)	440
NPN as % of PROTEIN (max)	90%
UREA (max)	138
FIBRE (max)	100
PHOSPHORUS (min)	15
MOISTURE (max)	120
CALCIUM (max)	45
	mg/kg
COPPER (min)	75
MANGANESE (min)	250
ZINC (min)	250
COBALT (min)	0.75
IODINE (min)	3
SELENIUM (min)	0.75
SULPHUR (min)	12 000

RECOMMENDED INTAKES* (g/animal/day)	Cattle	Sheep
Non-lactating	400 - 500	80 - 90
Growing, late gestation	400 - 500	80 - 90
Lactating	600	100

## WARNING

- This animal fodder contains an NPN source and should be fed strictly according to instructions. Do not feed together with any other animal fodder containing NPN. Consult a livestock expert.
- When the transition is made from an NPN-free fodder to a product containing NPN, it is best to feed a 50/50 mixture of the old and the new product for an adjustment period of four to six days.
- Vinegar works efficiently against NPN poisoning. Mix with equal parts of water, and provide half a bottle per calf or large sheep and two to four bottles per head of cattle (1 bottle = 750ml).
- Keep this fodder out of the rain. Urea is soluble, and animals that drink such a solution can be poisoned.

\* Good quality roughage needs to be freely available at all times. The indicated intake only serves as a guideline of the lick amounts that need to be supplied alongside roughage to address nutrient needs. The lick intake can vary depending on roughage quantity and quality.





# WINTERONDERHOUDSLEK

CLASS PROTEIN, MINERAL AND TRACE-MINERAL SUPPLEMENT FOR RUMINANTS

REG NR. V 16896 ACT 36 OF 1947

BAG CODE ●●●

- This product contains 35% protein, a large part of which is natural protein, which makes provision for the building blocks of protein synthesis.
- This lick is ideal for growing young animals.
- For optimal utilisation, soluble and natural protein need to be supplied in the correct ratio.
- Low urea levels in this product make it suitable to feed to sheep.
- Feed freely to animals with access to sufficient levels of roughage, dry veld or hay.
- Use as transition lick from winter to summer, just before the first green grass appears.
- Ideal product to supplement poor-quality winter pastures.
- The lick's rumen-stimulating characteristics help boost intake from the veld or pasture, in this way ensuring sufficient energy for bacterial activity.

COMPOSITION	g/kg
PROTEIN (min)	350
NPN as % of PROTEIN (max)	92.2%
CALCIUM (max)	48
PHOSPHORUS (min)	12
SULPHUR (min)	12
UREA (max)	80
	mg/kg
COPPER (min)	50
MANGANESE (min)	250
ZINC (min)	250
COBALT (min)	0.75
IODINE (min)	3
SELENIUM (min)	0.75

RECOMMENDED INTAKES (g/animal/day)	Cattle	Sheep
Non-lactating	400 - 500	100
Growing, late gestation	400 - 500	100
Lactating	500 - 600	110

## WARNING

- This animal fodder contains an NPN source and should be fed strictly according to instructions. Do not feed together with any other animal fodder containing NPN. Consult a livestock expert.
- When the transition is made from an NPN-free fodder to a product containing NPN, it is best to feed a 50/50 mixture of the old and the new product for an adjustment period of four to six days.
- Vinegar works efficiently against NPN poisoning. Mix with equal parts of water, and provide half a bottle per calf or large sheep and two to four bottles per head of cattle (1 bottle = 750ml).
- Keep this fodder out of the rain. Urea is soluble, and animals that drink such a solution can be poisoned.



# PRODUKSIELEK25

CLASS PROTEIN, MINERAL AND ENERGY SUPPLEMENT FOR RUMINANTS  
REG NR. V19829 ACT 36 OF 1947

BAG CODE ★★ ★

A ready-mixed supplement of balanced protein-energy trace minerals that can be applied in different circumstances.

- This product can be used to improve the body-mass gain of grazing animals under circumstances where only or mainly poor-quality grass is available for roughage.
- Dairy heifers can be maintained from AI until calving on Produksielek 25.
- Improves muscle growth in young animals.
- Apply as creep feed from a month before mating season to

ensure a higher ovulation rate, which in turn leads to higher conception and calf/lamb percentage.

- Animals who have ceased ovulating due to weak condition can be brought onto cycle again with Produksielek 25.
- Stimulates milk production of dams, which in turn has a positive effect on young animals.
- Improved milk production results in stronger suckling animals and weaning masses.
- Builds the condition of stud bulls before the mating season.

COMPOSITION		g/kg			
PROTEIN (min)		250			
NPN as % of PROTEIN (max)		70%			
UREA (max)		68.4			
ENERGY (estimated)		8.3MJ/kg			
FIBRE (max)		100			
MOISTURE (max)		120			
CALCIUM (max)		12			
PHOSPHORUS (min)		7			
MAGNESIUM (min)		1.42			
SULPHUR (min)		3.61			
		mg/kg			
COPPER (min)		30			
MANGANESE (min)		110			
ZINC (min)		110			
COBALT (min)		0.5			
IODINE (min)		1.3			
SELENIUM (min)		0.5			
RECOMMENDED INTAKES* (g/animal/day)					
	Lactating	In lamb/calf	Young animals	Maintenance	Creep
Sheep	300 - 400	250 - 350	200 - 450	120 - 220	450
Cattle	1000 - 2500	1000 - 1200	750 - 800	500 - 600	1000
Dry cattle on pastures				1 - 1.5 kg / animal/day	
Cows 8-10 weeks after calving				1 - 1.5 kg / cow/day	

## WARNING

- This animal fodder contains an NPN source and should be fed strictly according to instructions. Do not feed together with any other animal fodder containing NPN. Consult a livestock expert.
- When the transition is made from an NPN-free fodder to a product containing NPN, it is best to feed a 50/50 mixture of the old and the new product for an adjustment

period of four to six days.

- Vinegar works efficiently against NPN poisoning. Mix with equal parts of water, and provide half a bottle per calf or large sheep and two to four bottles per head of cattle (1 bottle = 750ml).
- Keep this fodder out of the rain. Urea is soluble, and animals that drink such a solution can be poisoned.

\* Good quality roughage needs to be freely available at all times. The indicated intake only serves as a guideline of the lick amounts that need to be supplied alongside roughage to address nutrient needs. The lick intake can vary depending on roughage quantity and quality.



# LENTELEK22

CLASS PROTEIN, MINERAL AND ENERGY SUPPLEMENT FOR RUMINANTS

REG NR. V21793 ACT 36 OF 1947

BAG CODE ●●●

- Lentelek is fully balanced to supply animals with the complete nutrient composition at the end of winter and the beginning of spring before the first rains.
- Contains protein, high levels of which are natural protein, energy, trace- and macro-minerals.
- Lentelek can be used as creep feeding before and during the mating season and help to prevent pregnancy toxemia before the first green grass appears.
- Lentelek contains the nutrients needed to boost production in stud animals.

<b>COMPOSITION</b>		<b>g/kg</b>
PROTEIN (min)		<b>220</b>
NPN as % of PROTEIN (max)		<b>63%</b>
UREA (max)		<b>50</b>
ENERGY (estimated)		<b>7.8MJ/kg</b>
FIBRE (max)		<b>100</b>
MOISTURE (max)		<b>120</b>
CALCIUM (max)		<b>20</b>
PHOSPHORUS (min)		<b>8</b>
MAGNESIUM (min)		<b>1.64</b>
SULPHUR (min)		<b>7.4</b>
		<b>mg/kg</b>
COPPER (min)		<b>30</b>
MANGANESE (min)		<b>110</b>
ZINC (min)		<b>110</b>
COBALT (min)		<b>0.5</b>
IODINE (min)		<b>1.3</b>
SELENIUM (min)		<b>0.5</b>
<b>RECOMMENDED INTAKES* (g/animal/day)</b>		
Sheep		<b>150 - 250</b>
Cattle		<b>750 - 1500</b>

## WARNING

- This animal fodder contains an NPN source and should be fed strictly according to instructions. Do not feed together with any other animal fodder containing NPN. Consult a livestock expert.
- When the transition is made from an NPN-free fodder to a product containing NPN, it is best to feed a 50/50 mixture of the old and the new product for an adjustment period of four to six days.
- Vinegar works efficiently against NPN poisoning. Mix with equal parts of water, and provide half a bottle per calf or large sheep and two to four bottles per head of cattle (1 bottle = 750ml).
- Keep this fodder out of the rain. Urea is soluble, and animals that drink such a solution can be poisoned.

\* Good quality roughage needs to be freely available at all times. The indicated intake only serves as a guideline of the lick amounts that need to be supplied alongside roughage to address nutrient needs. The lick intake can vary depending on roughage quantity and quality.



# ENERGIELEK 18

CLASS PROTEIN, MINERAL AND ENERGY SUPPLEMENT FOR RUMINANTS  
REG NR. V19827 ACT 36 OF 1947

BAG CODE ■ ■ ■

- Applied in situations where animals are rounded off on the veld.
- This lick can safely be fed at levels of 3kg/head of cattle/day.
- Best results are obtained when Energielek 18 is fed to animals on good-quality green pastures.
- To be used on a discretionary basis as creep feed for young beef-cattle calves from three months up to a maximum intake of 2.5kg/animal/day to achieve an expected growth rate of 1.4kg/day.
- Rise in body mass of between 800g and 1.2kg per day for weaner calves on backgrounding in large camps with sufficient grazing options.
- Replacement heifers from six to eight months can be fed 1 kg/heifer/day.
- Ideal supplement for the rounding off of young stud animals on high-quality veld or planted pastures. Can be used for Phase D rounding off.

## COMPOSITION

	g/kg
PROTEIN (min)	180
NPN as % of PROTEIN (max)	63.1%
UREA (max)	35
ENERGY (estimated)	8.7MJ/kg
FIBRE (max)	100
MOISTURE (max)	120
CALCIUM (max)	10
PHOSPHORUS (min)	5
MAGNESIUM (min)	1.7
SULPHUR (min)	3.6

mg/kg

COPPER (min)	30
MANGANESE (min)	110
ZINC (min)	110
COBALT (min)	0.5
IODINE (min)	1.3
SELENIUM (min)	0.5

## RECOMMENDED INTAKES\* (g/animal/day)

Calves	500 - 1500
Heifers and weaner calves	1000 - 2500
Cattle	1500 - 3000
Sheep	300 - 600

## WARNING

- This animal fodder contains an NPN source and should be fed strictly according to instructions. Do not feed together with any other animal fodder containing NPN. Consult a livestock expert.
- When the transition is made from an NPN-free fodder to a product containing NPN, it is best to feed a 50/50 mixture of the old and the new product for an adjustment period of four to six days.
- Vinegar works efficiently against NPN poisoning. Mix with equal parts of water, and provide half a bottle per calf or large sheep and two to four bottles per head of cattle (1 bottle = 750ml).
- Keep this fodder out of the rain. Urea is soluble, and animals that drink such a solution can be poisoned.

\* Good quality roughage needs to be freely available at all times. The indicated intake only serves as a guideline of the lick amounts that need to be supplied alongside roughage to address nutrient needs. The lick intake can vary depending on roughage quantity and quality.



# SKAAPWOLLEK28

CLASS PROTEIN, MINERAL AND TRACE-MINERAL SUPPLEMENT FOR RUMINANTS  
REG NR. V19826 ACT 36 OF 1947

BAG CODE ●●●

- A ready-mixed supplement for woolled and mutton sheep and specifically ewes with lambs at foot grazing on dry veld.
- Contains a high energy value.
- Molasses have been added to make this product more palatable and to act as binding agent.
- A specialised lick that stimulates milk production for ewes and promotes high-quality wool growth.
- Contains high levels of natural rumen non-degradable protein as well as sulphur to ensure the amino-acid requirements for improved milk and wool production are met.
- Feed throughout the year, to all sheep classes.
- To stimulate milk production, it should be fed to ewes from four weeks before to at least six weeks after lambing, at between 250g and 500g/animal/day.
- Feed the lick alongside any roughage source.
- An organic barrier system in the lick prevents bloat, especially in maize fields.
- The addition of anion salts to the lick limits the danger of bladder and kidney stones.

COMPOSITION		g/kg
PROTEIN (min)		280
.....		
NPN as % of PROTEIN (max)		63%
UREA (max)		50
ENERGY (estimated)		8.5MJ/kg
FIBRE (max)		100
MOISTURE (max)		120
CALCIUM (max)		20
PHOSPHORUS (min)		8
MAGNESIUM (min)		1.64
SULPHUR (min)		7.4
		mg/kg
COPPER (min)		30
MANGANESE (min)		110
ZINC (min)		110
COBALT (min)		0.5
IODINE (min)		1.3
SELENIUM (min)		0.5

RECOMMENDED INTAKES* (g/animal/day)	
Sheep	150 - 450

## WARNING

- This animal fodder contains an NPN source and should be fed strictly according to instructions. Do not feed together with any other animal fodder containing NPN. Consult a livestock expert.
- When the transition is made from an NPN-free fodder to a product containing NPN, it is best to feed a 50/50 mixture of the old and the new product for an adjustment period of four to six days.
- Vinegar works efficiently against NPN poisoning. Mix with equal parts of water, and provide half a bottle per large sheep (1 bottle = 750ml).
- Keep this fodder out of the rain. Urea is soluble, and animals that drink such a solution can be poisoned.

\* Good quality roughage needs to be freely available at all times. The indicated intake only serves as a guideline of the lick amounts that need to be supplied alongside roughage to address nutrient needs. The lick intake can vary depending on roughage quantity and quality.



# VOLLEDIGESKAAPGROEI

CLASS PROTEIN, MINERAL AND TRACE-MINERAL SUPPLEMENT FOR RUMINANTS

REG NR. V22020 ACT 36 OF 1947

BAG CODE ▲▲▲

- Optimum growth is attained with this feed, but provision needs to be made for sufficient floor space for feed and water, and protection against environmental elements needs to be provided.
- Clean and cool water needs to be provided at a rate of 7ℓ per animal per day.
- This product:
  - contains a safe growth stimulant.
  - has been buffered to protect animals from acidosis.
  - contains anionic salts to limit the occurrence of bladder and kidney stones.

COMPOSITION	g/kg
PROTEIN (min)	140
PROT. EX NPN (max)	26.1%
UREA (maks)	10
FAT (min)	25
FAT (max)	70
FIBRE (min)	110
FIBRE (max)	150
MOISTURE (max)	120
CALCIUM (max)	15
PHOSPHORUS (min)	3

## RECOMMENDED INTAKES

This is a complete ration and should be fed ad lib to young animals after an accustoming period of 14 days up until marketing.

**Accustoming period:** Limit the intake of this finishing feed to approximately 1% of live weight for the first 14 days to prevent feed-related disorders. In addition, provide high-quality roughage ad lib during this period.

## WARNING

- This animal fodder contains an NPN source and should be fed strictly according to instructions. Do not feed together with any other animal fodder containing NPN. Consult a livestock expert.
- When an NPN-free product is replaced with a product containing NPN, it is advisable to feed a 50/50 mixture of the old and new product for a transitional period of 4-6 days.
- Vinegar works efficiently against NPN poisoning. Mix with equal parts of water, and provide half a bottle per large sheep (one bottle = 750ml).
- Keep this fodder out of the rain. Urea is soluble, and animals that drink such a solution can be poisoned.



# VOLLEDIGESKAAPAFROND

CLASS PROTEIN, MINERAL AND TRACE-MINERAL SUPPLEMENT FOR RUMINANTS

REG NR. V22021 ACT 36 OF 1947

BAG CODE ★★ ★

- Optimum growth is attained with this feed, but provision needs to be made for sufficient floor space for feed and water, and protection against environmental elements needs to be provided.
- Clean and cool water needs to be provided at a rate of 7ℓ per animal per day.
- This product:
  - contains a safe growth stimulant.
  - has been buffered to protect animals from acidosis.
  - contains anionic salts to limit the occurrence of bladder and kidney stones.

COMPOSITION	g/kg
PROTEIN (min)	120
PROT. EX NPN (max)	30.7%
UREA (max)	10
FAT (min)	25
FAT (max)	70
FIBRE (min)	110
FIBRE (max)	200
MOISTURE (min)	120
CALCIUM (max)	10
PHOSPHORUS (min)	3

## RECOMMENDED INTAKES

This is a complete ration and should be fed ad lib from 35 days to marketing.

**Accustoming period:** Limit the intake of this finishing feed to approximately 1% of live weight for the first week to prevent feeding-related disorders. In addition, provide high-quality roughage ad lib during this period.

## WARNING

- This animal fodder contains an NPN source and should be fed strictly according to instructions. Do not feed together with any other animal fodder containing NPN. Consult a livestock expert.
- When an NPN-free product is replaced with a product containing NPN, it is advisable to feed a 50/50 mixture of the old and new product for a transitional period of 4-6 days.
- Vinegar works efficiently against NPN poisoning. Mix with equal parts of water, and provide half a bottle per large sheep (one bottle = 750ml).
- Keep this fodder out of the rain. Urea is soluble, and animals that drink such a solution can be poisoned.



# OOI & LAM BOOSTER

CLASS PROTEIN, MINERAL AND TRACE-MINERAL SUPPLEMENT FOR RUMINANTS  
REG NR. V22019 ACT 36 OF 1947

BAG CODE ■■■

- The feeding needs of ewes peak during lactation, and in intensive systems, ewes are tupped before lambs are weaned. For this reason, ewes should be fed sufficiently to ensure that they can wean heavy lambs and become pregnant again as soon as possible.
- The feed consists of good-quality natural protein. Special care has been taken to ensure amino-acid and ideal energy profile balance.
- This product develops optimal fetal and mothering components in the ewe, hence optimal lamb viability, colostrum and milk production.
- Can be fed on any hard surface. No feeding troughs are necessary.
- Correct accustoming is essential.
- Sufficient good-quality roughage should be available ad lib.

COMPOSITION	g/kg
PROTEIN (min)	170
PROT. EX NPN (max)	13.25%
UREA (max)	5
FAT (max)	70
FIBRE (min)	100
FIBRE (max)	150
MOISTURE (min)	120
CALCIUM (max)	15
PHOSPHORUS (min)	5
RECOMMENDED INTAKES (g/animal/day)	
Ewes and lambs	ad lib
Ewes with lambs in poor grazing conditions	200-400
Lactating ewes with multiple lambs	300-450

## WARNING

- This animal fodder contains an NPN source and should be fed strictly according to instructions. Do not feed together with any other animal fodder containing NPN. Consult a livestock expert.
- When an NPN-free product is replaced with a product containing NPN, it is advisable to feed a 50/50 mixture of the old and new product for an transitional period of 4-6 days.
- Vinegar works efficiently against NPN poisoning. Mix with equal parts of water, and provide half a bottle per large sheep (one bottle = 750ml).
- Keep this fodder out of the rain. Urea is soluble, and animals that drink such a solution can be poisoned.



# WILDSLEK I 8

CLASS PROTEIN, MINERAL AND TRACE-MINERAL SUPPLEMENT FOR GAME ANIMALS  
REG NR. V19831 ACT 36 OF 1947

BAG CODE ●●●

- Supplement for all game species, as well as cattle and sheep.
- Contains no urea, so it is 100% safe, even in the rainy season.
- A high-quality protein source.
- Contains aloe to help control parasites.
- Low levels of maize are included in this product, which prevents birds and baboons scraping the lick out of feeding troughs.
- Molasses act as binding agent and improve palatability.

COMPOSITION	g/kg
PROTEIN (min)	180
FIBRE (max)	100
MOISTURE (max)	120
CALCIUM (max)	20
PHOSPHORUS (min)	10
SULPHUR (min)	2
	mg/kg
COPPER (min)	25
MANGANESE (min)	75
ZINC (min)	125
COBALT (min)	2.5
IODINE (min)	15
SELENIUM (min)	2.5
	mg/kg
VIT E (min)	150
RECOMMENDED INTAKES (g/animal/day)	
Game	50 - 600



# WILDONDERHOUDSVOER

CLASS PROTEIN, MINERAL AND TRACE-MINERAL SUPPLEMENT FOR GAME ANIMALS  
REG NO. V22022 WET 36 VAN 1947

SAKKODE ■■■

- *Correct accustoming is essential.*
- *This product replicates the feed game animals – including a wide range of browsers and grazers – have access to in their natural surroundings.*
- *It contains the complete range of minerals and trace minerals as well as vitamin A prototype, the ideal provider of vitamin A.*
- *It consists of good-quality natural protein. Special care has been taken to ensure amino-acid and ideal energy profile balance.*
- *It can be used as supplement during feed-scarce periods or for animals kept in bomas or small camps.*
- *Can be fed on any hard surface. No feeding troughs are necessary.*
- *Sufficient roughage of good quality should be available ad lib.*

COMPOSITION	g/kg
PROTEIN (min)	140
FAT (min)	25
FAT (max)	70
FIBRE (min)	100
FIBRE (max)	150
MOISTURE (max)	120
CALCIUM (max)	10
PHOSPHORUS (min)	3.5

**RECOMMENDED INTAKES**

Feed at approximately 1-1.5% of live weight to supplement natural veld shortages.



# LEKKONSENTRAAT

CLASS PROTEIN, MINERAL AND TRACE-MINERAL SUPPLEMENT FOR RUMINANTS

REG NR. V 16897 ACT 36 OF 1947

BAG CODE ●●●

COMPOSITION		g/kg
PROTEIN (min)		<b>820</b>
NPN as % of PROTEIN (max)		<b>85.8%</b>
UREA (max)		<b>222</b>
MOISTURE (max)		<b>120</b>
CALCIUM (max)		<b>50</b>
CALCIUM (min)		<b>30</b>
PHOSPHORUS (min)		<b>27</b>
SULPHUR (min)		<b>12</b>
		<b>mg/kg</b>
COPPER (min)		<b>104</b>
MANGANESE (min)		<b>525</b>
ZINC (min)		<b>525</b>
COBALT (min)		<b>1.6</b>
IODINE (min)		<b>6.25</b>
SELENIUM (min)		<b>1.6</b>

## WARNING

- This animal fodder contains an NPN source and should be fed strictly according to instructions. Do not feed together with any other animal fodder containing NPN. Consult a livestock expert.
- When the transition is made from an NPN-free fodder to a product containing NPN, it is best to feed a 50/50 mixture of the old and the new product for an adjustment period of four to six days.
- Vinegar works efficiently against NPN poisoning. Mix with equal parts of water, and provide half a bottle per calf or large sheep and two to four bottles per head of cattle (1 bottle = 750ml).
- Keep this product out of the rain. Urea is soluble, and animals that drink such a solution can be poisoned.
- This is a supplement, not a fodder. Sufficient pastures and/or roughage should be available at all times.

	Winterlek Stubble fields lick		Winterlek44		Winterlek Veld lick		Produksielek		Energielek		P4	
	Bags	kg	Bags	kg	Bags	kg	Bags	kg	Bags	kg	Bags	kg
<b>MIXING INSTRUCTIONS</b>												
Maize/chop	-	-	3	150	6	300	10	500	13	650	1	50
Salt	8	400	6	300	5	250	4	200	3	150	8	400
Lekkonsentraat	12	600	11	550	8	400	5	250	4	200	6	300
Oilcake	-	-	-	-	1	50	1	50	-	-	-	-
Biofos P12	-	-	-	-	-	-	-	-	-	-	5	250
<b>COMPOSITION</b>												
Protein g/kg		490		450		360		260		220		25
Urea g/kg		130		110		90		55		44		66
Calcium g/kg		30		30		20		15		11		68
Phosphorus g/kg		15		15		10		7		7		38
Energy ME mg/kg		-		-		-		8.1		9.2		-



- Ensures optimal intake, digestion and absorption of all necessary nutrients.
- Ensures balanced levels of all nutrients animals need for optimal growth and development.
- Leads to optimal body-mass gain to reach the required marketable target mass within the most economic time.
- Creates a healthy rumen environment that keeps the animals healthy and improves breeding.
- Provide fodder at a ratio of 1% of body mass when animal is placed in the feedlot. Increase every second day with ½ of body mass until maximum fodder intake is obtained.
- Freely provide roughage for the first 10 days in the feedlot. Subsequently withdraw the roughage over a period of time until the animals have sufficiently adapted to their new environment.

COMPOSITION	g/kg
PROTEIN (min)	400
FROM UREA	73.8%
UREA (max)	50
FAT (min)	25
FIBRE (max)	100
MOISTURE (max)	120
CALCIUM (max)	14
PHOSPHORUS (min)	7

#### WARNING

- This animal fodder contains an NPN source and should be fed strictly according to instructions. Do not feed together with any other animal fodder containing NPN. Consult a livestock expert.
- When the transition is made from an NPN-free fodder to a product containing NPN, it is best to feed a 50/50 mixture of the old and the new product for an adjustment period of four to six days.
- Vinegar works efficiently against NPN poisoning. Mix with equal parts of water, and provide half a bottle per calf or large sheep and two to four bottles per head of cattle (1 bottle = 750ml).
- Keep this product out of the rain. Urea is soluble, and animals that drink such a solution can be poisoned.
- Animals should be given time to adapt. Sufficient pastures and/or roughage should be available at all times.

**40**

# VETMAAKKONSENTRAAT 40

CLASS PROTEIN, MINERAL AND TRACE-MINERAL SUPPLEMENT FOR RUMINANTS

REG NR. V 21799 ACT 36 OF 1947

BAG CODE ★★ ★

**FEEDING INSTRUCTIONS\*\***

The following are examples of applications of fattening concentrate in ruminant diets.

	Growth feeding		Full rounding off		Full rounding off of sheep		Full rounding off of sheep		Full feed for cattle	
	Bags	kg	Bags	kg	Bags	kg	Bags	kg	Bags	kg
<b>MIXING INSTRUCTIONS</b>										
<i>Vetmaakkonsentraat 40</i>	4	200	3	150	2	100	3	150	2	100
<i>Maize</i>	12	600	12	600	14	700	13	650	12	600
<i>Molasses meal</i>	2	80	3	120	2	80	3	120	–	–
<i>Lucerne meal</i>	–	120	–	–	–	120	–	–	–	–
<i>Roughage</i>	–	–	–	130	–	–	–	80	–	300
<b>COMPOSITION OF MIX</b>		<b>1000</b>		<b>1000</b>		<b>1000</b>		<b>1000</b>		<b>1000</b>
<i>Protein* (min) g/kg</i>		148		133		140		145		116
<i>*from urea</i>		*19.39%		*16.18%		*10.18%		*14.18%		*29.69%
<i>Fat (min)</i>		25		25		25		25		25
<i>Fibre (max)</i>		100		120		120		120		150
<i>Moisture (max)</i>		120		120		120		120		120
<i>Calcium (max)</i>		8.5		10		9		10		6
<i>Phosphate (min)</i>		4.4		4		3.5		4		3

\*\* Good quality roughage needs to be freely available at all times. The indicated intake only serves as a guideline of the lick amounts that need to be supplied alongside roughage to address nutrient needs. The lick intake can vary depending on roughage quantity and quality.

**50**

# VETMAAKKONSENTRAAT**50**

CLASS PROTEIN, MINERAL AND TRACE-MINERAL SUPPLEMENT FOR RUMINANTS

REG NR. V 21794 ACT 36 OF 1947

BAG CODE ■■■

- Ensures optimal intake, digestion and absorption of all necessary nutrients.
- Ensures balanced levels of all nutrients animals need for optimal growth and development.
- Leads to optimal body-mass gain to reach the required marketable target mass within the most economic time.
- Creates a healthy rumen environment that keeps the animals healthy and improves breeding.
- Provide fodder at a ratio of 1% of body mass when animal is placed in the feedlot. Increase every second day with  $\frac{1}{2}$ % of body mass until maximum fodder intake is obtained.
- Freely provide roughage for the first 10 days in the feedlot. Subsequently withdraw the roughage over a period of time until the animals have sufficiently adapted to their new environment.

COMPOSITION	g/kg
PROTEIN (min)	<b>500</b>
FROM UREA	<b>68.16%</b>
UREA (max)	<b>120</b>
FAT (min)	<b>25</b>
FIBRE (max)	<b>100</b>
MOISTURE (max)	<b>120</b>
CALCIUM (max)	<b>14</b>
PHOSPHORUS (min)	<b>7</b>

**WARNING**

- This animal fodder contains an NPN source and should be fed strictly according to instructions. Do not feed together with any other animal fodder containing NPN. Consult a livestock expert.
- When the transition is made from an NPN-free fodder to a product containing NPN, it is best to feed a 50/50 mixture of the old and the new product for an adjustment period of four to six days.
- Vinegar works efficiently against NPN poisoning. Mix with equal parts of water, and provide half a bottle per calf or large sheep and two to four bottles per head of cattle (1 bottle = 750ml).
- Keep this product out of the rain. Urea is soluble, and animals that drink such a solution can be poisoned.
- Animals should be given time to adapt. Sufficient pastures and/or roughage should be available at all times.

**50**

# VETMAAKKONSENTRAAT 50

CLASS PROTEIN, MINERAL AND TRACE-MINERAL SUPPLEMENT FOR RUMINANTS

REG NR. V 21794 ACT 36 OF 1947

BAG CODE ■■■

**FEEDING INSTRUCTIONS\*\***

The following are examples of applications of fattening concentrate in ruminant diets.

	Rounding off		Full rounding off phase 1		Full rounding off phase 2		Full feed for cattle	
	Bags	kg	Bags	kg	Bags	kg	Bags	kg
<b>MIXING INSTRUCTIONS</b>								
Vetmaakkonsentraat 50	3	150	3	150	2	100	3	150
Maize	17	850	13	650	15	750	9	450
Molasses meal	–	–	2	80	2	80	2	80
Roughage	–	–	–	120	–	70	–	320
<b>COMPOSITION OF MIX</b>		<b>1000</b>		<b>1000</b>		<b>1000</b>		<b>1000</b>
Protein* (min) g/kg		147		145		130		130
*from urea		*29.15%		*39.35%		*28.7%		*29.69%
Fat (min)		25		25		25		25
Fibre (maks)		100		120		120		150
Moisture (maks)		120		120		120		120
Calcium (maks)		8.5		10		10		8
Phosphate (min)		4.4		4		4		4

\*\* Good quality roughage needs to be freely available at all times. The indicated intake only serves as a guideline of the lick amounts that need to be supplied alongside roughage to address nutrient needs. The lick intake can vary depending on roughage quantity and quality.

# BACKGROUND INFORMATION FOR ROUNDING OFF

The goal of rounding off (fattening up) is to achieve as much body-mass gain as possible during a period of about 100 days.

The biggest production losses are usually associated with calves that struggle to adapt to the feedlot environment.

There is an alternative system, where bought and even bred weaner calves are introduced to and prepared for the feedlot in the veld or in larger camps over a shorter period; this introduction period provides an opportunity to sort out handling, health, stress and nutrition issues.

In this system, processing also causes significantly lower stress levels than when intakes happen in the traditional way in the feedlot.

Here's how to run the system:

1) Bring the cattle to the area (kraal, pastures, veld etc) and supply clean fresh water and lots of high-quality hay. If round bales (1.5m) are fed, one bale per day will do for 20 heads of cattle.

- Always handle the animals in such a way as to cause minimum levels of stress.
- Remember the three R's when introducing the cattle – rest for 12 to 24 hours, rehydrate to counter moisture losses during the transport of the animals, and supply the rumen with balanced nutrients to boost the animals' energy as soon as possible.

2) Provide 2 to 2.5kg natural fodder per head. It is beneficial to provide fodder that contains an antibiotic growth stimulant. Ensure that there is at least 30cm between the individual animals at the feeding troughs. The height of the feeding side should be 40cm. First put the fodder in the feeding trough, and cover it with the hay – this will teach the animals to forage through the hay for the fodder. Feed them once a day so that the fodder remains fresh. Remove sour and mouldy food daily.

3) Kraals or camps should be large enough to allow easy movement, but they should not be too large. About 40m<sup>2</sup> per animal is sufficient in low-rainfall areas and in other areas during the dry seasons. In high-rainfall areas the area per animal should be doubled. But beware of camps that are too large – the animals will just get lost and struggle to find their way to the feeding troughs. It's best to put watering and feeding troughs against the fence. Some animals patrol the fences during the settling-in period and just after weaning and will thus find the food and water without hassle.

4) Process approximately 24 hours after weaning. Consult a veterinary surgeon to ensure that the correct vaccination programme is followed for the area. Try to limit dust and mud during processing, and limit activities during excessive heat. Processing involves:

- Vaccinate with IBR, P-3, BVD and BRSV – the current recommendation for an adapted live vaccine. Repeat after two weeks. Carefully follow the instructions on the pamphlet.
- Vaccinate against clostridial diseases – seven-way vaccine is recommended. Repeat after two weeks. Carefully follow the instructions on the pamphlet.
- Administer vitamin A, D, E complex – carefully follow the instructions on the pamphlet.
- Deworm (orally or by injection). Carefully follow the instructions on the pamphlet.
- Treat for external parasites. Carefully follow the instructions on the pamphlet.
- Dehorn if necessary.
- Castrate bulls. (In some cases the testicles are just moved up and kept in place with an elastic band.)
- Number with ear plates.
- Supply roughage/long hay throughout processing. Group the animals according to gender and keep them in these groups until they are slaughtered so that there is minimal disturbance to the social order.

# BACKGROUND INFORMATION FOR ROUNDING OFF

- 5) The animals should be scanned every day, and all sick and morbid animals should be placed in a separate camp. Treat with antibiotics depending on the symptoms. Administer vitamin B and sulpha bolus.
- 6) There are many feed programmes that can be followed. The easiest is to feed hay with a fodder obtained from the area at a ratio of 1 to 1.5% of body mass. The protein content of the fodder depends on the hay's protein value. The same applies to cattle that graze. During the warm months it is recommended to feed  $\pm 30\%$  of the diet in the early morning and  $\pm 70\%$  in the early afternoon. Animals eat very little or not at all during the warmest time of the day. Moist fodder is negatively influenced when it remains in feeding troughs during the heat of the day. It is important, however, that animals take in the daily portion of a balanced diet in 24 hours. Besides a balanced diet, coccidiosis control is important; administer at least twice a day with fresh food.
- 7) Provide cool and clean drinking water; approximately 45ℓ per animal per day will suffice.
- 8) Animals that have been fed for a minimum of 45 days are considered feedlot ready – they have adapted to the camp environment, know what feeding and watering troughs are and are able to eat from them. These animals have also been processed since the beginning.

## **It is very important to allow animals to adapt slowly and in the correct way:**

- Day 1-5: Limit full diet to 1.8% of body mass per animal per day plus free amounts of long hay.
- Day 6-10: Full diet plus free long hay.
- If animals are fully adapted and show no signs of acidosis, the full diet can be fed freely after day 10.

Feed intake is a rough indication. Intakes on diets

that are too dry (without silage) are usually limited. Add 5-10% ( $\pm 100\text{kg}$ ) water per ton.

Maize needs to be at least ground or rolled. Only 60% of whole maize is utilised. If maize is so cheap that it is bought simply to fill the stomach, it can be used whole. As soon as one of the brans becomes cheaper, it should rather be used as a filler, and then the maize's energy value can be fully realised. Maize can be fully or partially replaced by small grains or hominy chop.

For younger animals it is advisable to feed roughage and power fodder mixes separately, with both elements being provided freely. For the rounding-off phase it is, however, preferable to provide the roughage and power fodder as one complete mix. The power fodder should constitute 20% of the complete mix during the first 30 days, and 15% during the last 30 days. The fodder should be freely available.

Without the roughage component, these mixes prepare the rumen for feedlot diets and are supremely suited to supplementing natural winter grazing or to getting animals on condition. Feed at 1-2% of the body mass on summer or winter pastures, or camps with long hay.

This fodder contains ionophores and additives to limit acidosis and improve feed conversion ratio and growth.