

PRODUCTION AND MARKETING OF LUCERNE

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OUTLINE

- Lucerne Production
- Lucerne Marketing
- Economics

LUCERNE PRODUCTION

- Lucerne is a **perennial crop** with a productive stand life of 5-7 years.
- It is widely grown as forage for cattle and is often harvested as **hay**.

Paddock selection

- Lucerne requires a well-drained soil for maximum production.
- Lucerne will not tolerate waterlogged soils.
- All weeds including grasses should be eliminated when preparing the seedbed.

CLIMATIC CONDITIONS

- Lucerne is drought tolerant and has a deep rooting system.
- It grows well in climatic ranges of between 10 °C and 30 °C.
- The optimal growth temperature is estimated at 20 °C.

IRRIGATION

- Lucerne is renowned for its drought tolerance, but at the same time is very responsive to water.
- It responds well to irrigation.
- Avoid sowing lucerne into dry soil
- Seedling plants should have adequate moisture for successful establishment.

SEED VARIETY

- Each variety is associated with a winter dormancy number.
- Winter dormancy is numbered from 1 to 10.
 - Where,**
 - 1- The plant is strongly dormant during winter
 - 10- The plant is winter active or non-dormant.

SEED VARIETY

- In South Africa the following classes are the most suitable for our climatic regions:
 - 5 - Semi-dormant
 - 6 & 7 - Intermediate dormancy
 - 8 - Winter active/non-dormant
 - 9 - Highly winter active/non-dormant

SEED VARIETY

- The **more** winter dormant a variety,
 - the **longer** its lifespan and
 - the better adapted it is to **grazing**.
- The **less** winter dormant a variety,
 - the **shorter** its lifespan and
 - the more suited it is for **hay** production.

SEED VARIETY

Variety	Dormancy Group
PAN 4546	5
Pub 5681	6
PAN 4764	7
Phb 58N57	8

SEED PRICES

- Prices as follows (excl. VAT):
 1. Lucerne - SA Standard = R50.40 /kg - dormancy 5
 2. Lucerne - Gea = R68.25 /kg - dormancy 7
 3. Lucerne - Marina = R68.25 /kg - dormancy 7/8

*Prices obtained from Bulk Seed Company

TIME OF PLANTING

- Lucerne may be planted in either autumn or spring.
- Spring sowing can begin in September-November.
- Autumn planting can begin in February-April.

SOWING RATE

- The seeding rate for lucerne vary from 12-18 kg/ha with differences based upon region, soil type, and seeding method.
- The recommended seeding rate is 15kg/ha.

SOIL pH AND LIMING

- Lucerne is one of the few crops which will thrive on a soil with a high pH.
- Acidity will not be tolerated.
- For maximum yields, the land should be limed to a pH of 6.5 to 6.8.
- Yield of lucerne drops rapidly in soil of pH less than 6.7

YIELD

- **Yields vary** with region, weather, and the crop's stage of maturity when cut.
- Yields **also depend** on the plant population, maintenance of the crop and the variety that has been cultivated.
- **Average yield** ranges between 15 000 kg to 30 000 kg per hectare.
- The **first cutting** gives an average yield of about 1.5-2 tons/ha. and then the **yield increases** during subsequent cuttings.

HARVESTING TIME

- Lucerne is mechanically harvested
- First cutting should commence at the bud stage and the subsequent cuttings follow just after flowering.
- It is expected that the period between **Planting** to **first cut** is 42 days.
- You can cut lucerne five or six times a year.

CROP ROTATION

- Lucerne exhibits autotoxicity.
- In other words lucerne plants produce a chemical(s) which suppress the germination and growth of lucerne seedlings.
- Therefore, it is recommended that alfalfa fields be rotated with other species (for example, corn) before reseeding.
- A rotation of 5 years is advised between lucerne crops.



LUCERNE MARKETING

LUCERNE CAN BE USED FOR:

- **GRAZING**

- The pasture is not harvested but grazed by livestock.
- Lucerne has excellent qualities for grazing, but it can cause bloat.

- **SILAGE**

- Fermented high moisture fodder that can be fed to ruminants.

LUCERNE CAN BE USED FOR:

- **HAY**

- Cut, dry and store lucerne for use as livestock fodder during times of scarcity.

- **FEEDING**

- Dairy farmers and beef cattle farmers use it to feed their animals on a daily basis to sustain good levels of animal performance.

LUCERNE CAN BE USED FOR:

- **HUMAN USES**

- Lucerne is not only a valuable animal feed, but also has alternative uses, **e.g. as a health food for humans.**
- can be used against allergies, arthritis, pregnancy sickness, stomach ulcers, and bad breath.
- Lucerne is usually used either as pills, capsules or as a tea.

LUCERNE MARKETS

- **FEEDLOT**

- Livestock is fed until they obtain market weight for good market prices and sold.
- Feedlots can obtain hay and silage from the farmer to fatten the livestock before slaughtering.

LUCERNE MARKETS

- **DAIRY FARMS**

- Dairy cattle are fed for production of milk. The dairies will purchase hay, silage and other products.

- **GRAZING**

- Livestock from other farms can graze at a rental price.

ECONOMICS

ESTABLISHMENT COST

- Equipment Requirements per 1 000 ha

ITEM	PRICE/UNIT	QUANTITY	TOTAL PRICE
Seeders	R 614 665.00	X 1	R 614 665.00
Fertilizer Spreaders	R 94 396.50	X 2	R 188 793.00
Sprayers	R 75 500.00	X 2	R 151 000.00
Mowers	R 148 050.00	X 2	R 296 100.00
Rakes	R 125 000.00	X 2	R 250 000.00
Balers	R1 034 550.00	X 2	R2 069 100.00
Loaders: Quickie loader	R 35 242.75	X 4	R 140 971.00
Bale fork & Attachments	R 4 497.50	X 4	R 17 990.00
Big Bag Lifter	R 1 395.00	X 2	R 2 790.00
TOTAL			R3 731 409.00

ESTABLISHMENT COSTS

- OTHER ESTABLISHMENT COSTS MAY INCLUDE:
 - HAY TRAILERS
 - TRACTOR
 - IRRIGATION INSTALATION
 - SHED/STORAGE HOUSE
 - OPERATING COSTS

PRODUCT INCOME

- Afriqua developments has proposed a price of R1 000/ton for Lucerne Hay grade 1.
- The current market price for Lucerne Hay grade 1 is R1 800/ton.

PRODUCT INCOME

- At R1 000.00 per ton

ITEM	UNIT	PRICE/UNIT (R)	QUANTITY	VALUE/HA (R)
Lucerne Hay Sold	Tons	1 000.00	15	15 000.00

- At R1 800.00 per ton

ITEM	UNIT	PRICE/UNIT (R)	QUANTITY	VALUE/HA (R)
Lucerne Hay Sold	Tons	1 800.00	15	27 000.00

* **NB:** Assuming that all hay produce is Grade A

LUCERNE PRICES

- TWK Price – R98.00/bale
- Assegay Feeds (Durban) – R120.00/bale
- Equerry (Hillcrest) – R95/bale and is R65/bale for the same company based in Cape Town.
- Northern Cape farmer – R80/bale
- Lucerne Hay prices vary from one trader to another.

ESTABLISHMENT YEAR COSTS

- PRE-HARVEST COSTS

ITEM	UNIT	PRICE/UNIT	QUANTITY	COST/HA
Lucerne Seeds	Kg	88.00	15.00	1 320.00
Fertilizer: KCL	Ton	5 275.00	0.20	1 055.00
Supers 10.5%	Ton	4 275.00	0.57	2 436.75
Lime: Dolomitic Lime	Ton	1 175.00	3.00	3 525.00
Agricultural Gypsum	Ton	1 175.00	0.50	587.50
Pest Control: Karate	Kg	123.28	0.82	101.09
Trace Elements: Sodium Molibdate	Kg	261.19	0.45	117.54
Irrigation	mm	3.44	800.00	2 752.00
TOTAL				11 895.69

ESTABLISHMENT YEAR COSTS

- HARVEST COST

ITEM	UNIT	PRICE/UNIT	QUANTITY	COST/HA
Packaging: Twine	Kg	38.74	30.00	1 162.20
Transport	Ton	150.00	15.00	2 250.00
TOTAL				3 412.20

- INDIRECTLY ALLOCATABLE COSTS

ITEM	UNIT	PRICE/UNIT	QUANTITY	COST/HA
Fuel	Litres	11.80	170	2 006.00
Repairs & Maintenance				1 490.00
TOTAL				3 496.00

- TOTAL ESTABLISHMENT YEAR COST

➤ $11\ 895.69 + 3\ 412.20 + 3\ 496.00 = \mathbf{R18\ 803.89}$

PRODUCTION YEARS 2-5

- PRE-HARVEST COSTS

ITEM	UNIT	PRICE/UNIT	QUANTITY	COST/HA
Fertilizer:				
KCL	Ton	5 275.00	0.47	2 479.25
Supers 10.5%	Ton	4 275.00	0.57	2 436.75
Trace Elements:				
Sodium Molibdate	Kg	261.19	0.45	117.54
Solubor	Kg	27.32	5.00	136.60
Irrigation	mm	3.44	800.00	2 752.00
TOTAL				7 922.14

PRODUCTION YEARS 2-5

- HARVEST COST

ITEM	UNIT	PRICE/UNIT	QUANTITY	COST/HA
Packaging: Twine	Kg	38.74	36.00	1 394.64
Transport	Ton	150.00	18.00	2 700.00
TOTAL				4 094.64

- INDIRECTLY ALLOCATABLE COSTS

ITEM	UNIT	PRICE/UNIT	QUANTITY	COST/HA
Fuel	Litres	11.80	166	1 958.80
Repairs & Maintenance				1 452.17
TOTAL				3 410.97

- TOTAL COST-PRODUCTION YEARS 2-5

➤ $R7\ 922.14 + R4\ 094.64 + R3\ 410.97 = \mathbf{R15\ 427.75}$

GROSS MARGIN PER HA

- ESTABLISHMENT YEAR

ITEMS	At a price of R1 000	At a prices of R1 800
Product Income	15 000.00	27 000.00
Total Allocatable Costs	18 803.89	18 803.89
GROSS MARGIN	-3 803.89	8 196.11

- PRODUCTION YEARS 2-5

ITEMS	At a price of R1 000	At a prices of R1 800
Product Income	15 000.00	27 000.00
Total Allocatable Costs	15 427.75	15 427.75
GROSS MARGIN	-427.75	11 572.25

* Assuming a yield of **15 ton** for both, establishment year and subsequent years.