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## Annual Ryegrass – *Lolium multiflorum*

Annual Ryegrass is a tufted grass, usually planted under irrigation. It is more tolerant to the challenging conditions in South Africa than Perennial Ryegrass. It can be categorized into either Westerwold-, Intermediate- and Italian types. **Westerwold types** do not require a prolonged cold period to become reproductive and will give better production in mid-winter and spring. With an autumn planting date, it will become reproductive in October. **Italian types** becomes reproductive with a significant cold period and have a long growing season (up to 12 months) when planted in autumn, and even longer (up to 18 months) when planted in spring. **Intermediate types** are blends of Westerwold and Italian types in different ratios, which means that they will have varying growth periods. Leaves are nutritious, soft and highly digestible resulting in good animal production. This grass is best adapted to areas where the annual rainfall exceeds 1200 mm and distribution correlates with the crop's production curve.



### Strengths

- 14-20 t DM/ha/season  
**Depending on environmental conditions and management**
- Quick to establish
- High quality
- Short grazing cycles

### Limitations

- Limited growth period
- Poor summer production
- After fertilization Nitrate poisoning is possible with poor grazing management



- Diploid and tetraploid types are available
- More tolerant to poor soil fertility than Perennial Ryegrass

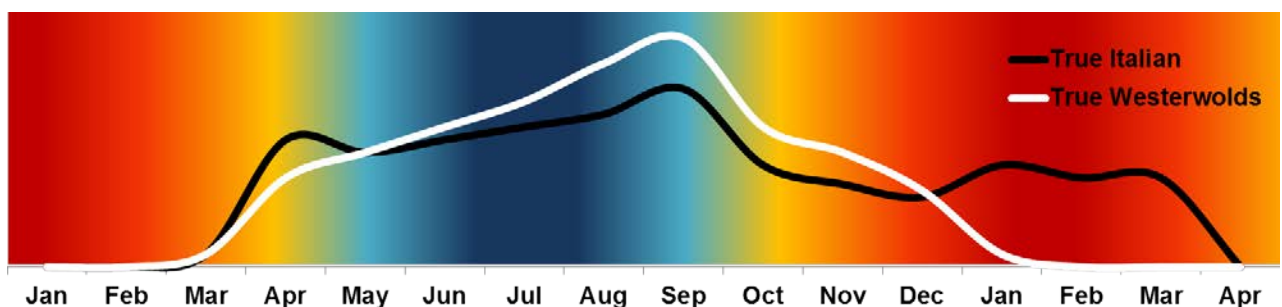
## What can it be used for?

**Grazing:** Utilise with production animals like dairy cows, weaners or sheep. Rotational, high-pressure grazing ensures optimal utilisation.

**Silage:** Surplus production can be ensiled to use during times of low forage availability.

**Cover Crop:** Ryegrass offer fast cover of the soil, which is essential for erosion control. It also improves the soil by stabilising soil aggregates, breaking compaction, improving water infiltration rate and building soil organic material. It is an excellent scavenger of Nitrogen from the soil. Ryegrass extracts heavy metals from the soil and is relatively tolerant to saline conditions in the soil. The fast growing plants suppress weeds.

**Production potential:** Annual ryegrass can produce yield of 14 – 20 t DM/ha/season, depends on soil fertility, environmental conditions and frequency of utilisation <sup>(1, 2)</sup>.



### Relative growth curve of a True Italian and True Westerwolds Annual Ryegrass stand, over the potential production period.

**Metabolic disturbances in animals on cultivated pastures:**

**Annual Ryegrass Staggers:** A rare condition caused by toxins produced by bacteria.

**Nitrate poisoning:** Nitrate build up in plants under periods of poor growth, especially after high N fertilisation.



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## Establishment

- Climate:** Annual Ryegrass is adapted to temperate and subtropical areas, however, cultivar selection is crucial for production during different climatic conditions. Seedlings exposed to extreme heat or -cold can be damaged and stand loss may occur.
- Moisture:** Under dryland conditions it requires at least 1200 mm per annum, provided distribution correlates with its production curve. Best production is achieved under irrigation.
- Soil:** It can survive in soil with pH (KCl) levels as low as 4.5 as long as acid saturation < 10%. Optimal production is however achieved on well-drained fertile soils with the pH (KCl) > 5.
- Fertilization:** Annual Ryegrass responds very well to high nitrogen (N) fertilisation (> 250 kg/ha/season). 30 – 50 kg N/ha can be fertilized after every grazing. A soil analysis before establishment is essential <sup>(1, 2, 3)</sup>.

	N (kg/ha)	P (mg/kg soil)	K (mg/kg soil)
Requirement for establishment***	30-50*	20-30	140
Seasonal application (kg/ha)	250-500**	Use removal rates	
<b>Production - Removal rates (kg/ton):</b>			
Good quality fodder	42	3.8	34
Average quality fodder	27	3	28
Poor quality fodder	16	2.2	22

\*Fertilizer just after establishment (kg/ha)

\*\*Selected rate should maximise profit

\*\*\*Determined by production potential

Phosphorus (P) and Potassium (K) can be recycled back to pastures when grazed by animals. This is dependent on the grazing system and the type of animals used. Up to 40% of P and 90% of K can be recycled <sup>(5)</sup>. It is however necessary to do annual soil analysis to determine the level to which recycling occurred. The difference should be fertilized.



**Methods:** Establish on a firm, fine, weed free seed bed. Consolidating (rolling) the seedbed after sowing/ planting will ensure good seed-soil contact and subsequently better germination and establishment.

Our prescribed seeding rate:	Rows <sup>(1, 2)</sup>		Broadcast <sup>(1, 2)</sup>	
	Diploid	Tetraploid	Diploid	Tetraploid
	20 kg/ha	25-30 kg/ha	25 kg/ha	35 kg/ha

**Planting time:** Best establishment months are February to April, however a spring planting (August to mid-September) can be successful for Italian types. Take note that Westerwold ryegrasses should only be planted in autumn (March to May).

## Management

**Utilisation:** Due to its quick establishment, Annual Ryegrass can be utilised from 6-8 weeks after planting (depending on planting date and growth rate). It is however necessary to do a pull-test (pull on leaves as if to simulate grazing) to determine if plant roots are developed well enough to prevent uprooting of plants. Unlike Perennial Ryegrass, an Annual Ryegrass plant can maintain more than three leaves. Therefore, grazing should take place as soon as canopy cover becomes dense. It is however also expected to get 6-10 grazing cycles per season.

## Cultivars

### **Maximus**

Maximus is a **tetraploid Westerwold** ryegrass with good heat tolerance and resistance to the disease rust. It has fast establishment with good winter production.

### **Ribeye**

Ribeye is a **diploid Westerwold** ryegrass with good production potential and has moderate resistance to rust.

## Resources

1. Pasture Handbook, Kejafa Knowledge Works, ISBN 0-620-31994-1
2. FAO - <http://www.fao.org/ag/agp/AGPC/doc/Gbase/data/pf000199.htm>
3. Nutrient Requirements of Beef Cattle, 1984



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4. Penn State Extension, Agronomy Facts 19, Ryegrass
5. Dannhauser CS. 1991. Die bestuur van aangeplante weiding in die somerreëval-dele, vol. 1. Warmbad



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