

## 'Grasslands Vision' cocksfoot (*Dactylis glomerata* L.)

W. RUMBALL

J. E. MILLER

R. B. CLAYDON

AgResearch Grasslands  
Private Bag 11008  
Palmerston North, New Zealand

**Abstract** Grasslands Vision' cocksfoot (*Dactylis glomerata* L.) was selected from crosses between 'Grasslands Kara' and 'Grasslands Wana' cocksfoots. It is intermediate between them in morphology, though more like the erect Kara than the prostrate Wana. Vision is intended for use on dairy farms, and is expected to be slightly more persistent and productive than Kara, except in spring.

**Keywords** *Dactylis glomerata*; 'Grasslands Vision' cocksfoot

### ORIGIN

'Grasslands Vision' cocksfoot was bred from crosses between 'Grasslands Kara' (Rumball 1982a) and 'Grasslands Wana' (Rumball 1982b) cocksfoots.

The original crosses were made in December 1975, when the 12 parent plants of Wana (each cloned 10 times) were pair-crossed in pollen-proof cages with the 19 parent plants of Kara (each cloned 6–7 times) in 120 random combinations. Seed was harvested and cleaned separately from each plant.

A bulk of F<sub>1</sub> hybrid seed was then made by equal blends from all 240 plants, and this F<sub>1</sub> formed the base from which 3 further generations of mass

selection and recombination were made at intervals during the next 12 years. On each occasion, selection was made towards a cocksfoot morphology that was intermediate between the (erect) Kara and the (prostrate) Wana types. It also attempted to combine the seedling vigour and long leaves of Kara with the tiller density of Wana.

In February 1993, the F<sub>4</sub> bulked seed was used to sow a pure sward evaluation trial. It also provided 200 spaced plants for final assessments of uniformity. From these plants, 52 of the best and most uniform were removed prior to flowering in December 1994, and transferred to an isolation house for interpollination. The seed was harvested and then blended for further seed increase. A large portion of this seed is being held in long term storage at the Margot Forde Germplasm Centre, Palmerston North, as the base for the new cultivar.

In 1996, the selection was released for commercialisation and named 'Grasslands Vision'. It received Plant Variety Rights in New Zealand on 26 April 1999, and a full statistical description is lodged in that application.

### DESCRIPTION

Vision cocksfoot is uniform and stable from one generation to the next, showing little signs of segregation towards either the Kara or Wana morphotypes. It resembles Kara more than Wana, though has slightly shorter, stiffer, narrower leaves and is slightly less erect than Kara. It is also more densely tillered than Kara. It lacks the comparatively prostrate habit of Wana, and also its brighter colour. Heading date is about the same as both Kara and Wana, and inflorescence production is intermediate; more than in Kara but fewer than Wana. Mature culms are larger than those of Wana and similar to Kara. In totality, the hybrid is intermediate between the parent cultivars in all obvious characters, including colour.

Seed yields and 1000-seed weight (about 1 g) are similar to those for Kara and Wana.

A00009

Received 9 February 2000; accepted 5 May 2000

## USE AND PERFORMANCE

Although Vision cocksfoot is intermediate between the two parent cultivars in morphology, the breeding aim was to incorporate the best performance characters of both Kara and Wana, particularly the rapid establishment of Kara, and the greater sward density of Wana.

The success of this aim was measured by comparing all three cultivars (and 'Grasslands Tekapo' and 'Grasslands Excel' cocksfoots) in a sward trial at Palmerston North. In March 1993, pure sward plots were sown of all cultivars, each 3 m × 1.5 m and replicated four times. The plots were cut and weighed 10 times over the next two years to measure establishment vigour and seasonal yield patterns. These harvests were made each time the tallest plots reached about 25 cm in height. All plots were mown to about 6 cm.

At the end of two years, mowing ceased. The area was thereafter grazed periodically by sheep for one year, after which the relative sward densities were assessed.

At the first (establishment) cut, the erect cultivars Kara and Vision produced significantly ( $P < 0.05$ ) more dry matter (DM) than Excel, followed by Wana and Tekapo. The accumulated

DM over 10 harvests was significantly highest ( $P < 0.05$ ) in Vision (23 364 kg DM ha<sup>-1</sup>), with no significant differences among Wana, Kara, Excel, and Tekapo (21 319 to 22 096). Seasonal patterns within this total harvest showed Vision to be relatively less productive in spring, but among the most productive in other seasons. After the extra year of grazing, sward density of Vision was intermediate between those of Kara and Wana, as scored by visual estimates of tiller density on a scale of 1 to 5.

Although evaluation of Vision will continue for some years, in a range of countries, the early indications from the above and similar trials are that it will be a high-producing cultivar suitable for dairy farms and with added sward persistence over Kara, a cultivar presently used on dairy farms.

## REFERENCES

- Rumball, W. 1982a: 'Grasslands Kara' cocksfoot (*Dactylis glomerata* L.). *New Zealand Journal of Experimental Agriculture* 10: 49–50.
- Rumball, W. 1982b: 'Grasslands Wana' cocksfoot (*Dactylis glomerata* L.). *New Zealand Journal of Experimental Agriculture* 10: 51–52.