been lost on native pasture there have been no stock losses on this fine stem stylo paddock.

The field day meeting finished at about 3.30 pm with a vote of thanks from Dr. Date.

PROCEEDINGS

DAIRY PASTURES, LUCERNE EVALUATION AND SEED PRODUCTION FIELD MEETING, LOCKYER VALLEY, NOVEMBER 18, 1983

The Annual Meeting for 1983 was held on 18th November in conjunction with a field meeting to view dairy pastures near Mulgowie in the Lockyer Valley, lucerne breeding on Gatton Research Station, Qld Department of Primary Industries and grass seed production activities at Gatton Agricultural College.

IRRIGATED DAIRY PASTURES

C. EMMERSON* AND A. BIRD**

*Thornton via, Mulgowie, **Department of Primary Industries, Ipswich

The dairy herd of 70 head is supported on about 50 ha of arable land with irrigation, together with 150 ha of hill country on which improvement has begun using Callide Rhodes grass. The farm uses a combination of ryegrass pastures, ryegrass plus temperate clovers, lucerne, forage millet and Lablab bean. Emphasis at this meeting is on the ryegrass and ryegrass/clover pastures and comparison of their productivity.

The ryegrass pasture (cv. Tama) sown at 40 kg ha^{-1} receives 240 kg superphosphate and 125 kg potassium sulphate per ha at planting and 125 kg urea ha^{-1} after each of the four grazings commonly obtained over the winter/spring period. It is believed that a mixture of ryegrass with clover may be a more productive pasture system. This mixture comprises a seed sowing per hectare of Tama ryegrass 5 kg, Clare sub clover 20 kg, Haifa white clover 5 kg and NZ Red Clover 5 kg; planted in April with the same fertilizer as the ryegrass and one dressing of 125 kg urea in mid-winter. The sub clover and ryegrass provide early grazing in the winter and the white and red clovers contribute mainly in early summer. The present pasture, which is strip grazed on a 4–5 week rotation, has lasted 2 years and possibly will go for three years. Comparative production figures for 1982/83:

	Milk production/cow	D.M. production
Ryegrass alone	12.7 litres/day	17 t ha^{-1}
Ryegrass/clover	13.4 litres/day	16 t ha^{-1}

The cows are supplemented with 2–2.5 kg of grain per day in April to June. The better quality of the clovers improves milk production from a lower dry matter yield and costwise the ryegrass/clover mixture has a great advantage because of the lower amount of nitrogen fertilizer used (about 600 kg ha^{-1} less).

Johnson grass is a serious weed in some pastures and no doubt affects the quality of the pastures for milk production but possibly helps reduce bloat incidence.

The 15 ha of lucerne on the property is grazed in summer but in spring when the other pastures provide ample feed the lucerne is cut for hay which is used as a reserve for wet periods when grazing is not feasible.

LUCERNE BREEDING

K. LOWE
Department of Primary Industries, Ipswich

Hunter River was the sole variety used up to 8 years ago but the infestation of blue-green and spotted aphids in 1976 led to renewed interest in improved varieties. New varieties have been introduced from the U.S.A. and bred locally and these are currently being screened for production and resistance to aphids and crown and root rot problems. A number of the new varieties appear to be twice as productive as Hunter River in the initial testing. Recently a severe leaf disease has appeared in winter growth, it develops rapidly within a few days, causes leaf drop and ruins the crop for hay production. New varieties will have to be screened for this problem. The new varieties are also being tested for hay quality as well as dry matter production.

PASTURE AND FODDER CROP SEED PRODUCTION AT QAC

L. M. BAHNISCH
Queensland Agricultural College, Lawes

Over recent years the College has played an increasing role in the specialist seed production of a range of pasture and fodder crop species. The objectives of these activities are aimed towards teaching, research and evaluation/demonstration of appropriate technology and as a service to primary industry. Currently, seed is being produced from Black barley, Algerian oats, berseem clover, Midmar ryegrass, *Cassia rotundifolia*, *Setaria sphacelata* synthetics and purple pigeon grass. Production activities involving the latter two species are discussed in more detail below.

SETARIA SYNTHETIC VARIETIES

J. B. HACKER
Division of Tropical Crops and Pastures, CSIRO, Brisbane

Setaria sphacelata cv. Narok is a successful cultivar in terms of frost tolerance and increased animal production, but suffers from highly priced seed because its seed production is low.

A breeding program has been carried out with the aim of incorporating the better feature of Kazungula-type accessions with the winter greenness of the tetraploids from the Aberdare Mountains of Kenya. Two synthetics have now been produced which have the winter yield, winter greenness and leafiness of Narok, but which have double the seed production. They have been shown to be stable for the seed production characteristic and they are being considered for future release.

A 0.5 ha breeder's seed production plot which had been sprig planted six weeks earlier was demonstrated. It was proposed to manage this area intensively to maximise yields, with a nitrogen application rate of about 150 kg N ha^{-1} $crop^{-1}$.

PURPLE PIGEON GRASS SEED PRODUCTION

L. M. BAHNISCH
Queensland Agricultural College, Lawes

Purple pigeon grass (*Setaria porphyrantha*) seed production is under study at QAC where a 2.7 ha area was planted in February 1982. Five crops have now been

harvested. They are grown with high rates of nitrogen (100 to 130 kg N ha^{-1} $crop^{-1}$) and irrigation. Over 1982/83 summer the first cleaning cut was applied late August 1982 followed by a nitrogen application and irrigation with the first harvest in mid November. A cleaning cut, nitrogen application and irrigation sequence was then applied and the 2nd harvest taken late January with the third crop started immediately and harvested mid April 1983. The same sequence is developing for the 1983/84 summer.

The material cut can be left on the ground if light enough or removed for other uses. Four hundred and fifty-five bales ha^{-1} of 6% protein material were removed in August 1983 following a moist, mild winter.

A nitrogen application of 130 kg ha^{-1} produces a crop 1.8 to 2.0 m tall which sags to 0.8 to 1.0 m as the crop matures. In so doing it increases the seed recovery by protecting the heads from wind shattering.

About five weeks after the clearing cut Dicamba and MCPA are sprayed for control of broad leaf weeds.

Irrigation requirements are seasonal, depending on rainfall and crop development. In 1982/83 250 mm were used over four applications. Uniformity of land and management practices are necessary to produce an evenly maturing crop. This is essential for choice of harvest date as there is no yield plateau evident, rather a sharp peak of standing seed.

Seed shatters readily and daily sampling suggests a quadratic trend in the presentation yield, with about four days during which yield of pure seed is within 15% of the maximum. Harvesting is with an unmodified Massey Ferguson 585 header with the wind cut to the minimum. It is not very efficient in recovery, losses of up to 50% of presentation crop being recorded.

Yields of 99+% purity have ranged from 61 kg ha^{-1} in May 1982 to 333 kg ha^{-1} in November 1983. The 1982/83 crop totalled 810 kg ha^{-1} from three harvests. Tetrazolium viability ranged from 92 to 45% and pure live seed from 56 to 168 kg ha^{-1} (1982/83 total 400 kg ha^{-1}).

The initial (May 1982) crop was low in yield and high for viability having been heavily cleaned.

Major conclusions are:

1. A high pure seed yield, in the order of 800 kg ha^{-1}, is possible from three harvests (November, January and April) per year.
2. Uniform management is required to promote even maturation.
3. Timing of harvest is imperative.
4. Seed viability may vary quite widely for reasons not presently understood.

BOOK REVIEW

Plants of the Kimberley Region of Western Australia by R. J. Petheram, and B. Kok—Photography by E. Bartlett-Torr (1983) ISBN 0–85564–215 7. Published by University of Western Australia Press, Nedlands, Western Australia, 6009 for the Rangeland Management Branch, Department of Agriculture, Western Australia. 556 pp A$20.00.

There has recently been quite a rash of books, and not before they were due, on the plants of various regions of Australia. These have varied in detail presented and method of presentation as well as price and style. The present book is a soft covered 21.5 × 15 cm by 556 page edition with a preliminary and three major sections plus appendixes. The introduction is an outline of "The Kimberley Scene"—Geology, Physiography, Climate, Population, Soils & Vegetation. History of Settlement and Pastoral Pursuits by K. Fitzgerald plus short sections on Rangeland Management Principles and How to use the book.