

**VG145**  
**Genetic improvement in green beans**

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**Queensland Department of Primary**  
**Industries**



*Know-how for Horticulture™*

VG145

This report is published by the Horticultural Research and Development Corporation to pass on information concerning horticultural research and development undertaken for the green bean industry.

The research contained in this report was funded by the Horticultural Research and Development Corporation with the financial support of the Gympie Fruitgrowers Association.

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Cover Price \$20.00

HRDC ISBN 1 86423 487 3

Published and Distributed by:



Horticultural Research and Development Corporation  
Level 6  
7 Merriwa Street  
Gordon NSW 2072

Telephone: (02) 9418 2200  
Fax: (02) 9418 1352

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## 1. Summary

### (a) Industry summary

These trials have identified cultivars with superior management and market quality characteristics for production by the Gympie green bean industry. The selection of superior cultivars enables a substantial net increase in income for producers without a significant increase in production costs as well as enabling the industry to expand its market with a product with superior quality characteristics.

Market surveys in Sydney and Melbourne have shown there is a preference for beans which are dark coloured, straight, slim, with a smooth surface texture and with a long shelf life. Bean cultivars, including beanettes, long round podded beans, flat podded beans and butterbeans were identified with these qualities as well as having high yield potential and important management characteristics, particularly ease of harvest.

The beanette, Labrador, is the current industry standard in the Gympie district. Beanettes are cultivars with short (14 cm or less), slim, round pods. Labrador performed well in the trials and from these results is likely to remain the main cultivar grown. It is well accepted by the market, particularly due to its dark colour, is reasonably adaptable to environmental conditions, and its upright bush is easy to manage.

Other beanettes to perform well include Broker, Bronco, BN090 and NW148. Broker and Bronco both yield well and have very smooth, straight pods. Their colour is not as dark as Labrador, however, which is a disadvantage on the current Australian market. BN090 yield well, has superior pod quality, including dark colour, and bushes are easy to manage. It has since been named by Northrup King Seeds as Chrisette, which was recently changed to Phoenix. NW148 also has superior pod quality characteristics, including dark colour, and was easy to manage. A hailstorm prevented a complete yield comparison. NW148 has since been released by New World Seeds as Matador.

Other bean cultivars to perform well include BN071, a long round podded cultivar suitable only for hand harvesting and now known as Jade, BN072, flat podded cultivar, and the butterbeans Goldrush and BN069.

These results have been extended to the Gympie bean industry through the Gympie bean industry field days in 1991 and 1992, and through regular written reports and regional and industry media. As bean cultivars are being continuously released by seed companies, it is important that they continue to be impartially evaluated if the industry is to continue to expand.

**(b) Technical summary**

Bean (*Phaseolus vulgaris* L.) cultivars were evaluated in 1991 and 1992 under commercial conditions for yield and for market quality and management characteristics. Seventeen cultivars from 4 seed companies were evaluated in spring 1991 and 19 cultivars from 5 seed companies in spring 1992. The market quality evaluations were based on those characteristics determined important by wholesalers and retailers. The cultivars included beanettes (short, slim, round podded beans), long round podded beans, flat podded beans and butterbeans. A severe hailstorm before harvesting could be completed in the 1992 trial prevented a more accurate picture of yield potential being collected.

Labrador, a beanette which is the current industry standard, performed well in both trials with desirable quality characteristics, particularly very dark green colour, and an upright bush which was easy to harvest. It also yielded well despite being shown in previous trials to be more suited to slightly cooler conditions. Broker, Bronco, BN090 and NW148 were other beanettes to perform strongly and exhibit suitability for the Gympie district. Broker and Bronco pods, however, were not as dark green as Labrador. A proper evaluation of NW148 yield potential was also prevented by the hailstorm.

Other superior bean cultivars suitable for commercial production identified from these trials include the long round podded bean, BN071, the flat podded bean, BN072, and the butterbeans, Goldrush and BN069.

## **2. Recommendations**

### **(a) Extension/adoption by industry**

The project was organised to maximise industry involvement. The trials were conducted under commercial conditions on a property selected by the growers. The annual Gympie bean industry field days in 1991 and 1992 were held at the trial sites and timed to coincide with the cultivars being ready for harvest. The field days were attended by growers and the seed company representatives and a detailed inspection and discussion was held with each cultivar. The 1991 trial was actually harvested during the field day to enable the growers to compare the yield performance and ease of harvest of the different cultivars.

Reports, including colour photographs, were prepared and distributed to growers, seed company representatives and other important agribusiness personnel following both trials. Media articles to extend the results of the trials were printed in the local newspapers and the Queensland Fruit and Vegetable News. The trial results were also extended to the growers through meetings of the Gympie Fruitgrowers Association.

The results of the trials have been widely adopted by the Gympie bean industry. The top performing cultivars are now either being widely grown in the Gympie district or, as in the case of NW148 and BN090, the seed companies are moving towards releasing commercial quantities of seed following interest by the industry.

### **(b) Directions for future research**

As cultivars are continuously being released by industry, it is important that cultivar evaluation continues on an impartial basis and under commercial conditions. Market quality and management characteristics need to be assessed as well as yield and the new cultivars compared with industry standards before recommendations can be properly made. The trials should have maximum industry involvement to ensure adoption of results.

These trials were conducted during spring which is the peak production period. However, as beans are grown for the fresh market in the Gympie district for harvesting from April to December, the cultivars need to be assessed in autumn and winter as well to gain a more complete picture of their potential. Growers from other districts, such as northern Queensland or southern New South Wales, may also find the cultivars perform differently under their conditions.

The market quality characteristics have only focused on visual appeal. Taste testing also needs to be conducted as there are suggestions there may be differences between cultivars.

This research has concentrated on the requirements of the Australian domestic market. If the bean industry is to develop export markets, it is important that the quality

characteristics that these markets regard as important be determined and the cultivars assessed for these.

The Queensland bean industry has decided that rust and root rot are also major priorities. The bean cultivar evaluation work in Gympie is therefore focusing on these aspects, as well as yield and market quality etc, within the QFVG/HRDC funded project "Integrated Pest Management in Beans".

**(c) Financial/commercial benefits**

Selection of superior cultivars enable a substantial net increase in income for producers without a significant increase in production costs. The preharvest production cost for green beans in the Gympie district is estimated at \$2000/ha. This cost is the same for high and low yielding cultivars.

Harvesting is another area where substantial savings can be made. Tall, upright bushes are usually easier to harvest, particularly where machine harvesting is being used. Spreading bushes, tangled beans or easily broken beans add substantially to harvesting costs.

All the better performing cultivars identified in the trials have been well accepted by the market. Market preference for dark coloured, smooth, straight pods is also usually reflected strongly in the price returned to growers. In a heavily supplied market, better quality beans would normally bring a market premium of at least 20 to 40 c/kg. At an average yield of 6 t/ha, this is equivalent to a premium of at least \$1200 to \$1400/ha. This premium is critical for survival if current heavy supplies on the Australian market continue.

As well as improving profitability for individual growers, the adoption of cultivars with superior quality characteristics offers the potential for market expansion. There is a greater opportunity to promote the product further and to develop the market if it is visually appealing to the consumer.

### 3. Technical Report

#### (a) Introduction

Green bean (*Phaseolus vulgaris* L.) production for the fresh market is the major horticultural industry in the Gympie district (26°S 152°E) with a farm gate value of approximately \$15m per annum. Harvesting is from April to December with the major production peak in spring. The main soil types are red clay loams (krasnozems). Other soil soils include shaly loams (lithosols) and loams over red clay subsoils (red podzolics) (O'Hare 1986). Most of the beans are grown on slopes up to 50% which provide extra warmth and sunshine during winter and protection from damaging winds. Most of the beans are hand harvested but the percentage machine harvested is increasing annually.

Most green beans grown in the Gympie district are beanettes. The term beanette originated in the Gympie district in 1980 as a marketing term for the cultivar Slenderette. It since has become accepted by the industry for any beans with short (14 cm or less), slim, round pods. Other beans grown in the Gympie district for the fresh market include long, round podded cultivars, stringless and string flat podded cultivars and yellow podded cultivars (butterbeans).

The identification of superior cultivars is regarded as a major priority by Gympie district bean growers. Cultivars are required which are high yielding with superior market quality characteristics and which are easy to harvest. The adoption of superior cultivars enables a substantial net increase in income for producers without a significant increase in production costs. It also enables market expansion with a product with preferred quality characteristics.

Sydney and Melbourne are the main markets for beans from the Gympie district. In surveys of wholesalers at the Sydney and Melbourne wholesale fruit and vegetable markets and of Sydney and Melbourne retailers in 1986 and 1987 (unpublished data), the most important preferred pod quality characteristics were dark colour, picked young, straight and uniform size. Other preferred pod characteristics included slim, clean, stringless and smooth surface texture. The cultivar Labrador was most often mentioned by wholesalers as possessing these characteristics. In a survey of wholesalers and retailers in Sydney in 1993, the preferred quality characteristics were dark colour, picked young, uniform size and shape, straight, clean and with a long shelf life (unpublished data).

Field trials in the Gympie district in 1987 and 1988 identified cultivars with superior characteristics (unpublished data). These included the beanettes Labrador, Bronco and Broker. Several new cultivars have been released to the industry by seed companies since these trials.

Labrador is the main cultivar currently grown in the Gympie district. The previous trials found it best suited to harvesting in autumn and early spring.

## (b) Materials and methods

### *Field trials*

Trials were conducted in 1991 and 1992 on a property at Glastonbury 20 km west of Gympie. The property was chosen in consultation with the Gympie Fruitgrowers Association as providing typical growing conditions and an ideal demonstration site. The soil type for both trials was a red clay loam (krasnozem).

The main companies supplying seed to the fresh green industry in Australia provided samples of superior cultivars for evaluation. Four companies provided 17 cultivars in 1991. These were:

- Northrup King Seeds - BN030 (Goldmine), BN071 (Jade), BN080, BN082, BN090 (Chrissette), BN093, BN094 and Triumph,
- New World Seeds - Goldrush, Labrador, Brio and Bronco,
- Arthur Yates and Company - Superstar and Brigadier, and
- Sunland Seeds - Broker, Novorus and Flovoro.

Five seed companies provided 19 cultivars in 1992. These were:

- Sunland Seeds - Kentucky Wonder, ESP, GS81, GS25, GS25G and Broker
- Northrup King Seeds - BN030 (Goldmine), BN060 (Rapier), BN069, BN071 (Jade), BN072 and BN090 (Chrissette),
- Arthur Yates and Company - Brigadier,
- New World Seeds - NW148 (Matador), Labrador and Bronco, and
- Royal Sluis - Acapulco, Narbonne and Nerina.

Single adjacent 90 m rows were planted on 11 October 1991 and 150 m rows were planted on 18 September 1992. Row spacing was 70 cm and plant spacing 8 cm. Depth of sowing was 25 mm. All cultivars germinated and established well except GS25G and Brigadier in 1992. The trial sites were surrounded by commercial bean crops and received the same standard cultural practices. Conditions were hot and dry during both trials.

### *Assessments*

The cultivars were assessed for yield and bush and pod characteristics.

A 40 m section of the 1991 trial was harvested with a DGM Superlight bean harvester, designed for harvesting single rows on sloping ground, at the bean industry field day held on 10 December 1991.

The 1992 trial was hand harvested. Kentucky Wonder and BN072 which were early maturing were harvested on 13, 16 and 19 November 1992. BN071 was harvested on 13 and 16 November 1992. All the other cultivars were harvested on 16 November. A severe hailstorm on the night of 19 November 1992 destroyed the trial preventing further harvests. Yields for both trials have been converted to tonnes/hectare.

Bush height and growth habit were assessed when the cultivars were ready for harvest. Bush height was assessed by measuring the average height from ground level to the top of the plant of 20 bushes. Growth habit was evaluated by comparison with Labrador, the industry standard, which has an upright bush. Upright bushes are usually easier to mechanically harvest.

Pod length was assessed by measuring the average length of 20 marketable pods. Pod colour, surface texture and straightness were determined by an experienced, impartial panel of 4 judges comparing the cultivars. Shelf life was determined in 1992 by storing the beans at 5°C and recording when they deteriorated to an unacceptable level for consumers.

Ease of hand harvest was determined by an experienced, impartial panel of 4 pickers.

The cultivars were also to be assessed for rust susceptibility during the 1992 trial. Despite bean rust usually being severe in spring in the Gympie district, it was almost completely absent from the trial.

### **(c) Results**

#### *1991 trial*

In the 1991 trial, the highest yielding cultivars were Bronco and Broker with 10.5 t/ha (Figure 1). Both are beanettes and had dark green, straight, very smooth pods with an average length of 13 cm (Table 1). Broker had a slightly more spreading growth habit than Bronco. Both cultivars were easy to hand harvest.

BN090 was the next highest yielding cultivar with 9.8 t/ha. It is also a beanette and had very dark green, straight, smooth pods and with an average length of 12.5 cm. Bushes were tall and upright and pods were easy to hand harvest.

Labrador yielded 9.6 t/ha. Pods were very dark green, slightly curved, smooth and with an average length of 12.5 cm. The bushes were upright and the pods easy to hand harvest.

Superstar, another beanette, was the next highest yielding cultivar with 8.8 t/ha. Pods were mid green, straight, slightly rough and with an average length of 12 cm. The bushes were upright but the pods broke easily during hand harvesting.

Novorus was the only other beanette besides Labrador and BN090 with very dark green pods. Novorus yielded 6.2 t/ha and had very straight, glossy pods with an average length of 11.5 cm. Bushes were tall and upright but the pods were difficult to hand harvest.

BN071 was the highest yielding longer podded cultivar with 8.6 t/ha. Pods were dark green, slightly curved, smooth and with an average length of 17 cm. The bushes were tall and upright but the pods were brittle and snapped easily during hand harvesting.

Goldrush was the highest yielding butterbean with 7.5 t/ha. Pods were bright yellow, slightly curved, smooth and with an average length of 14 cm. The bushes were very spreading making mechanical harvesting difficult but the pods were easy to hand harvest.

1992

The flat podded cultivar, BN072, was the highest yielding cultivar with 13.2 t/ha from 3 harvests (Figure 2). Pods were pale green, slightly curved, slightly rough with an average length of 16 cm and with a shelf life of 26 days (Table 2). The bushes had a spreading growth habit and the pods were easy to hand harvest.

The next highest yielding cultivar was the long, round podded cultivar, BN071, with 9.1 t/ha from two harvests. Pods were dark green, slightly curved, smooth with an average length of 17 cm and with a shelf life of 16 days. The bushes were slightly spreading and the pods were brittle and snapped easily during hand harvesting.

Bronco, Broker and BN090 were the highest yielding beanettes each with 8.2 t/ha from one harvest. Both Bronco and Broker had mid green, very straight, very smooth pods with an average length of 14 cm and a shelf life of 16 days. Bronco bushes were upright whereas Broker bushes were slightly spreading. Bronco pods were easy to hand harvest but Broker pods were tangled in the bush.

BN090 had dark green, straight, smooth pods with an average length of 13 cm and with a shelf life of 12 days. Bushes were tall and upright and pods were very easy to hand harvest.

Labrador yielded 4.6 t/ha from one harvest. Pods were very dark green, slightly curved, smooth with an average length of 13 cm and with a shelf life of 16 days. The bushes were upright and the pods were easy to hand harvest.

GS25G and NW148 were the only other cultivars with very dark green pods. GS25G had a very poor strike and only yielded 3 t/ha from one harvest. Pods were slightly curved, smooth with an average length of 14 cm and with a shelf life of 12 days. Bushes were slightly spreading and pods were easy to hand harvest. NW148 yielded 4.1 t/ha from one harvest but had appeared to have a heavy crop ready for harvest at the time of the hailstorm.

BN069 was the highest yielding butterbean with 7.6 t/ha from one harvest. Pods were very bright yellow, very straight, very smooth, with an average length of 13 cm and with a shelf life of 23 days. The bushes were slightly spreading and the pods were easy to hand harvest.

#### **(d) Discussion**

Cultivar selection involves understanding market preferences and matching these with management requirements. A number of cultivars have been identified in these trials with desirable management and market quality characteristics.

Labrador, the current industry standard, performed well in the trials. Despite previous trials showing Labrador more suited to autumn or early spring harvesting, it yielded only slightly less than the highest yielding cultivars in the 1991 trial. The pods were very dark green and smooth which are important preferred characteristics for the Australian market. The pods were slightly curved rather than straight, which is a disadvantage. The bushes were upright which is important for machine harvesting and the pods were also easy to hand harvest.

Bronco and Broker both yielded well. Pods were also very smooth and straight. However, pods were not as dark green as those of Labrador. Dark colour was the characteristic most commonly identified in the market surveys as being important. Broker also had a more spreading growth habit and harvesting difficulties.

BN090 was the cultivar in these trials best suited as a potential alternative to Labrador. It yielded well, pods were dark green, smooth and straight, and bushes were tall and upright and easy to harvest. Shelf life, however, was slightly shorter than for Labrador.

NW148 was the other beanette cultivar with most potential as an alternative to Labrador. The pods were very dark green, smooth and straight and although the bushes were slightly spreading, the pods were easy to harvest. The hailstorm which destroyed the 1992 trial, however, prevented obtaining a clear picture of the comparative yields.

BN071 was the best performing of the long, round podded cultivars. It yielded well and pods were dark green and smooth, although slightly curved. The brittle, easy snapped pods make them unsuitable for machine harvesting and careful handling would also be required during hand harvesting.

The market has similar preferences with flat podded cultivars as with round beans, particularly with regard to dark colour. BN072 performed best of the two flat podded cultivars trialled. It yielded well, had a long shelf life and although the bushes had a spreading growth habit, the pods were easy to harvest. There is a need on the market for a flat bean with a dark green, smooth, straight pod.

There is a small, niche market in Australia for butterbeans. As with green beans, the market prefers butterbeans with dark coloured, smooth, straight pods. Goldrush in 1991 and BN069 in 1992 both proved suitable. Goldrush had bright yellow, smooth, slightly curved pods. BN069 had very bright yellow, very smooth and very straight pods. Both cultivars were easy to hand harvest.

#### **(e) Acknowledgements**

I appreciate the assistance given to us by the cooperating grower, Mr Percy Bichel of Glastonbury. I am also grateful to the Gympie Fruitgrowers Association and the Horticultural Research and Development Corporation for providing funds for this project and to Arthur Yates and Company, New World Seeds, Northrup King Seeds, Royal Sluis and Sunland Seeds for providing seed.

#### **(f) References**

O'Hare, P.J. (1986). Horticulture in the Gympie District. Qld. Agric. J. 112: 279-84.

**Table 1 Bean cultivar bush and pod characteristics in 1991**

Cultivar	Average Bush Height (cm)	Bush Habit	Average Pod Length (cm)	Pod colour	Pod surface texture	Pod straightness	Ease of hand harvest
Goldmine	45	upright	15	bright yellow	smooth	slightly curved	good
BN094	48	spreading	13	pale yellow	smooth	slightly curved	good
BN071	48	upright	17	dark green	smooth	slightly curved	brittle pods snap early
BN080	48	spreading	15	dark green	slightly rough	straight	pod hard to pull off
BN082	43	very upright	11	dark green	smooth	straight	good
BN090	50	upright	12.5	very dark green	smooth	straight	very good
BN093	47	spreading	16	very dark green	rough	straight	pod break easily, difficult to separate stalks, tangled bush
Triumph	42	spreading	14	mid green	smooth	slightly curved	beans tangled in bush
Goldrush	41	very spreading	14	bright yellow	smooth	slightly curved	good
Labrador	44	upright	12.5	very dark green	smooth	slightly curved	good
Brio	40	upright	13.5	dark green	very smooth	straight	good
Bronco	40	upright	13	dark green	very smooth	straight	good
Brigadier	44	upright	11	dark green	slightly rough	straight	difficult to pull pods off
Superstar	40	very upright	12	mid green	slightly rough	straight	pod break easily
Broker	40	slightly	13	dark green	very smooth	straight	good
Novorus	48	upright	11.5	very dark green	glossy	very straight	difficult to pick
Flovero	40	very upright	11.5	dark green	very glossy	straight	good

**Table 2 Bean cultivar bush and pod characteristics in 1992**

Cultivar	Pod type	Average bush height (cm)	Bush habit	Average pod length (cm)	Pod colour	Pod surface texture	Pod straightness	Ease of hand harvest	Shelf life (days)
Kentucky Wonder	flat	48	very spreading	18	pale green	slightly rough	slightly curved	hard to pull off	26
ESP	round	45	slightly spreading	15	mid green	slightly rough	very straight	easy	21
GS81	beanette	42	slightly spreading	11.5	dark green	very smooth	strongly curved	easy	21
GS25G	beanette	45	slightly spreading	14	very dark green	smooth	slightly curved	easy	12
GS25	beanette	45	slightly spreading	14	dark green	smooth	slightly curved	easy	12
Broker	beanette	40	slightly spreading	14	mid green	very smooth	very straight	Pods tangled in bush	16
BN090 (Chrissette)	beanette	48	upright	13	dark green	smooth	straight	very easy	12
BN030 (Goldmine)	butter bean	42	upright	14.5	bright yellow	slightly rough	slightly curved	easy but low in bush	16
BN071 (Jade)	round	45	slightly spreading	17	dark green	smooth	slightly curved	brittle pods snap easily	16
BN072	flat	45	spreading	16	pale green	slightly rough	slightly curved	very easy no stalks	26
BN060 (Rapiet)	beanette	45	upright	10.5	mid green	slightly rough	very straight	very difficult	10
BN069	butter bean	42	slightly spreading	13	very bright yellow	very smooth	very straight	easy	23
Brigadier	beanette	40	slightly spreading	11	dark green	slightly rough	straight	fair	21
NW148	beanette	40	slightly spreading	14	very dark green	smooth	straight	easy	16
Labrador	beanette	42	upright	13	very dark green	smooth	slightly curved	easy	16
Bronco	beanette	40	upright	14	mid green	very smooth	very straight	easy	16
Acapulco	beanette	42	upright	13.5	dark green	smooth	slightly curved	easy	21
Narbonne	beanette	45	upright	14	dark green	smooth	straight	Pods tangled in bush	23
Nerina	beanette	45	upright	13.5	dark green	smooth	straight	hard	26

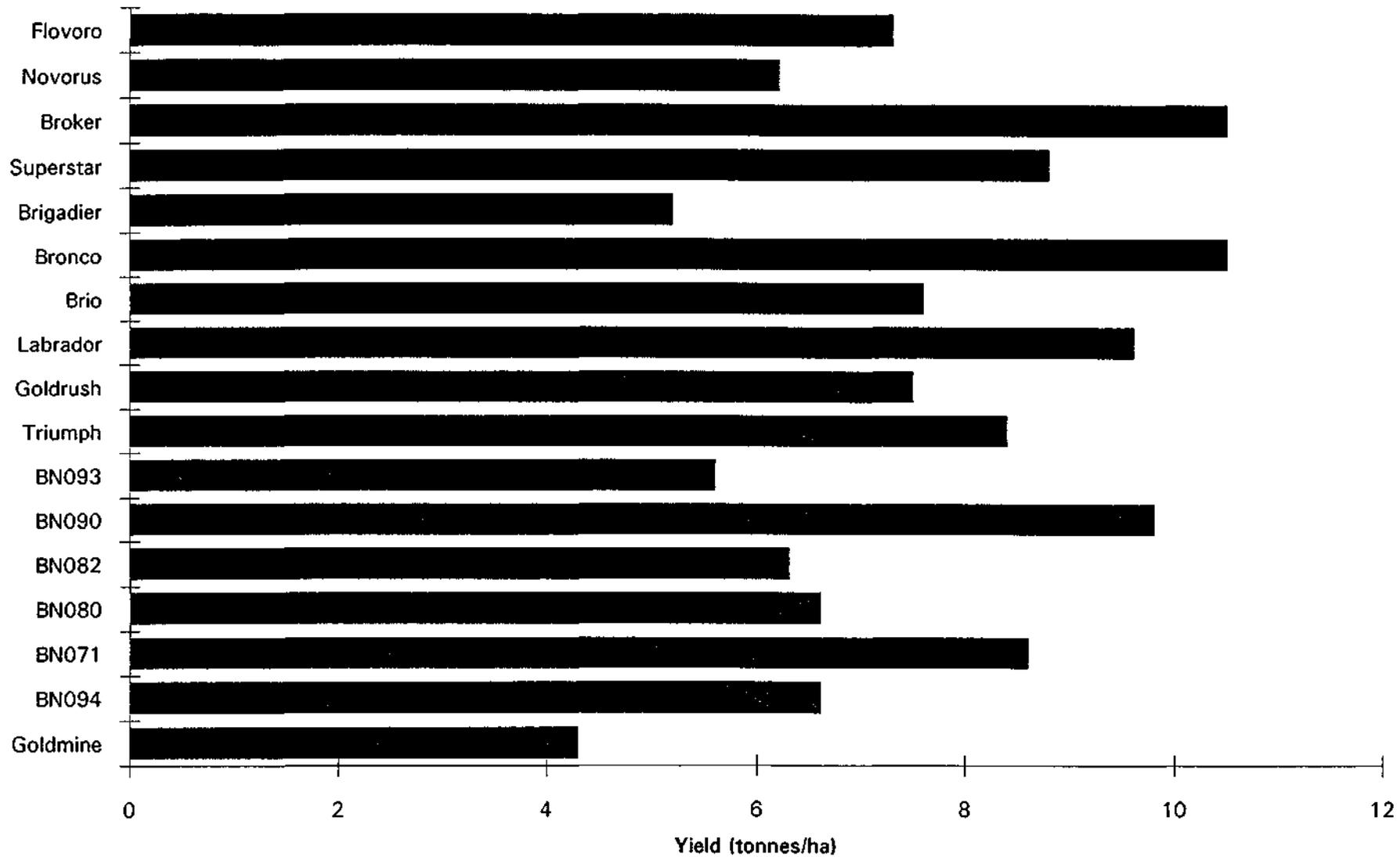


Figure 1. Bean cultivar yields in 1991

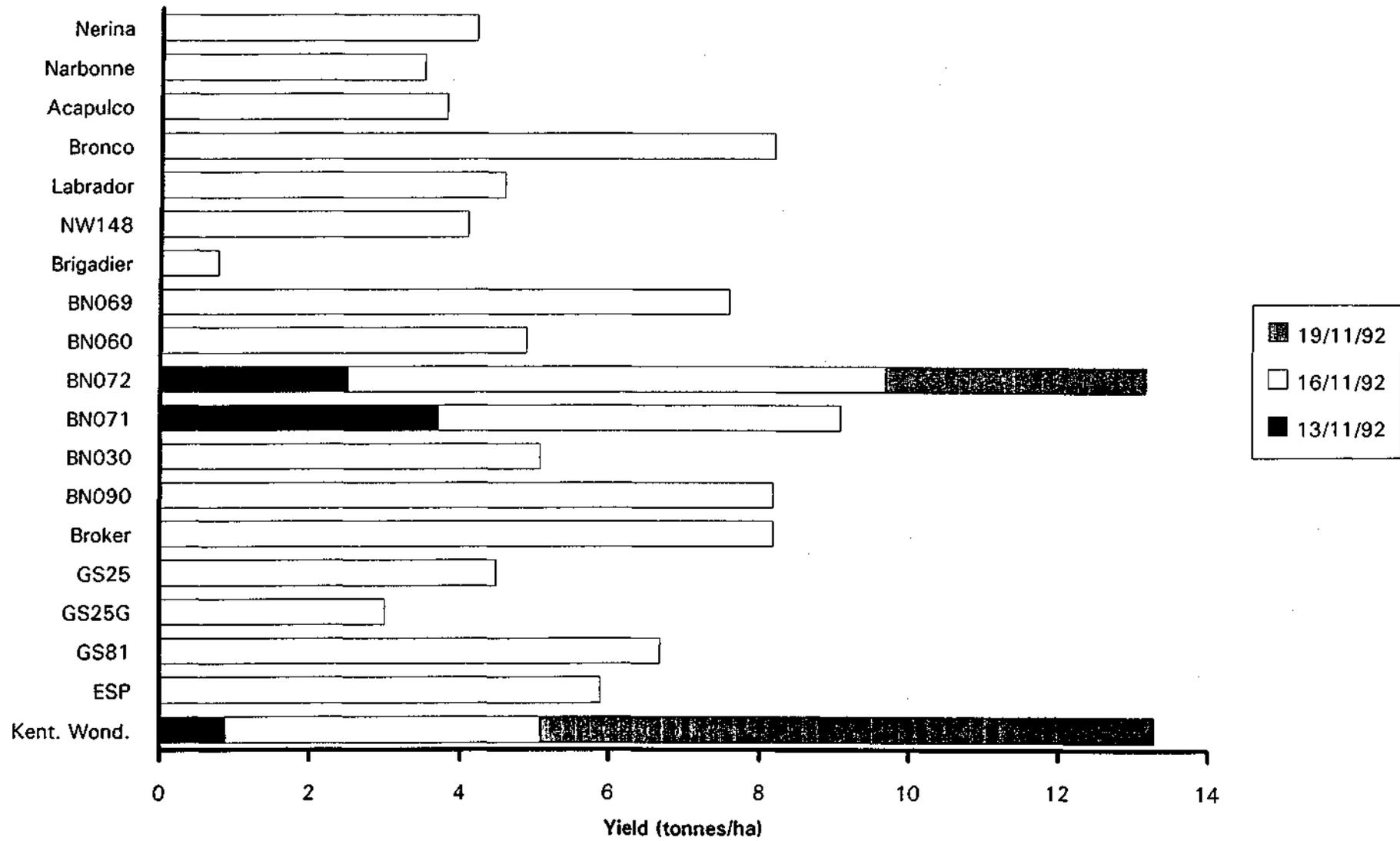


Figure 2. Bean cultivar yields in 1992

## ANNUAL BEAN FIELD DAY

The Gympie Fruitgrowers Association and the Queensland Department of Primary Industries are conducting their annual bean field day at 1.00 p.m. on Tuesday, 10th December on the property of Percy Bichel, Blunder Road, Glastonbury.

The day will feature an inspection of the latest bean varieties. Seed companies have supplied 17 proven performers and promising new varieties to be evaluated for yield and market quality characteristics. The bean varieties will be mechanically harvested during the field day.

Cultivation and minimum tillage equipment will also be demonstrated. Minimum tillage has shown great potential in cutting cultivation costs while reducing soil erosion and soil structural decline.

The GFA will be providing refreshments at the end of the day. All fruit and vegetable growers are welcome.

## Top performers in Gatton cauliflower trials



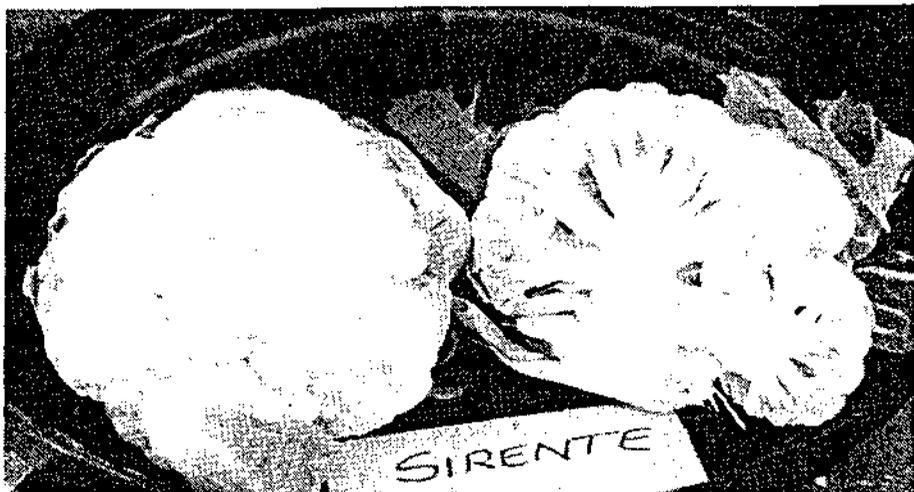
By Sue Helsswolf,  
Horticulture Branch,  
Gatton, QDPI.

Twenty three cauliflower varieties were transplanted on the 18 April 1991 and harvested from 3 July to 19 August at Gatton Research Station.

Weather conditions in autumn and early winter were warmer than usual and this may have disadvantaged varieties such as Telstar and White Delight.

Comments on five of the top performing varieties are given in Table 1. Lucie and Freemont, two quick maturing cauliflower varieties, performed well.

Plana was the best mid maturing variety although a high sib count detracted from its overall performance. Two other varieties which showed potential for this time slot were Hunter and Sirente.



"Sirente", one of several promising cauliflower varieties planted at the Gatton Research Station in autumn 1991

Table 1: Cauliflower varieties which performed well in an autumn planting at the Gatton Research Station.

Variety	Company	Comments
Plana	Royal Sluis	Attractive, medium sized heads. No fuzziness. High sib count, but sibs marketable.
Lucie	Henderson	Early maturing. Well shaped, medium sized heads. Heavy curds with good cover.
Freemont	Royal Sluis	Early maturing. Good appearance and colour. Uniform maturity.
Hunter	Yates	Attractive, clean heads. Medium to large size. A couple of sibs. Some fuzziness.
Sirente	Royal Sluis	Large heads of good density. Excellent colour. Shape could be better.

## Bronco and Broker show the way at bean field day

Paul O'Hare,  
Horticulture Branch,  
Gympie, QDPI

Bronco and Broker were the best performing bean varieties at the annual field day conducted by the Gympie Fruit growers Association and QDPI in December.

Fourteen green bean and three butter bean varieties were trialled on the property of Percy Bichel, Glastonbury via Gympie.

The beans were harvested with a DGM Superlight bean harvester at the field day. Bronco and Broker are dark green, straight, very smooth beans with an average pod length of 13 cm.

Both varieties yielded slightly over 10 tonnes per hectare.

BN 909, a new variety from Northrup King, also performed well. Bean pods were very dark green, smooth and straight with an average length of 12.5 cm.

The bushes were tall and upright and the

beans easy to harvest. Labrador, the current industry standard, also performed well.

Bean pods were very dark green, smooth and slightly curved with an average length of 12.5 cm.

Past experience has shown Labrador more suited to autumn or early spring production.

Goldrush was the highest yielding of the butter beans with 7.5 t/ha. The pods were bright yellow, smooth, slightly curved with an average length of 14 cm.

QUEENSLAND DEPARTMENT OF PRIMARY INDUSTRIES

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Issued by:

4 November 1992

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BEAN INDUSTRY FIELD DAY

The Gympie bean industry field day is to be held on the property of Percy Bichel at Blunder Road, Glastonbury on Thursday 12 November, starting at 1.00 p.m. The field day is organised by the Gympie Fruitgrowers Association and QDPI. It has been conducted every year since 1986 and is the major annual event for Gympie bean growers.

The Bean Industry Contribution Award will once again be presented by the Gympie Times. The award acknowledges the person who has made the most outstanding contribution to the Gympie bean industry during 1992.

Paul O'Hare, senior horticulturist with the QDPI in Gympie, stated that nineteen leading and new bean varieties will be on display. Growers will have the opportunity to discuss characteristics such as market quality, disease resistance and ease of management with breeders and seed company representatives. The beans will then be harvested and weighed at the field day.

Ross Wright, the officer in charge of the Bowen Horticultural Research Station, will present a report on the bean rust management project at the field day. Rust has become a major problem in the North Queensland bean industry. The rust project is looking at varietal resistance and chemical and cultural methods of control. Ross will discuss the results of the project and the implications for the Gympie bean industry.

Soil fumigation will also be demonstrated at the field day. A patch heavily infested with weeds and soil borne diseases has been fumigated and planted with beans. Growers will have the opportunity to inspect the technique and view the results.

Bean growers will also have the opportunity to inspect the latest cooling and post harvest handling techniques. Packaging company representatives will also be on hand to demonstrate the latest bean cartons.

## Gympie bean trial results



By Paul O'Hare, DPI Gympie

Seventeen green bean and two butter bean varieties from five seed companies were planted on the property of Percy Bichel at Glastonbury on 18 September. The trial was all hand harvested.

A severe hailstorm on the night of 19 November meant most of the varieties were only able to be harvested once. The bushes were evaluated for their ease of management and the pods for their market quality characteristics.

The Northrup King flat podded variety, BN072, topped the bean trials with a yield of 13.2 t/ha. The bushes had a spreading growth habit and pods were pale green, slightly curved, easy to harvest and with an average length of 16 cm.

The highest yielding beanettes were Bronco, Broker and BN090 with 8.2 t/ha. Both Bronco and Broker had mid green, very smooth, very straight, 14 cm long pods.

Broker bushes were slightly more spreading and beans more tangled in the bush than with Bronco. BN090 had

tall upright bushes with dark green, smooth, straight, 13 cm long, very easy to harvest pods.

Labrador, the current industry standard, yielded 4.6 t/ha. Bushes were upright and pods were very dark green, smooth, slightly curved and 13 cm long. The only other bean varieties with very dark green pods were NW148 and GS25.

The highest yielding butterbean was BN069 with 7.6 t/ha. The bushes were slightly spreading and pods were very bright yellow, very smooth, very straight and 13 cm long.



Inspecting the bean trial at Gympie. Five seed companies took part in the trials.

## Top presentation key to beating depressed bean prices: DPI

Gympie bean growers need to concentrate on marketing a well presented, top quality product if they are to survive, according to agents in the Sydney and Newcastle markets.

Department of Primary Industries senior horticulturist Paul O'Hare, Gympie, recently conducted a study of these two markets, interviewing agents and buyers, to identify marketing opportunities for local bean growers.

Mr O'Hare presented a full report on the study at a meeting of growers on June 15. The meeting also featured discussion on the potential for co-operative marketing and the future of the Gympie bean industry.

He spent a week at the Sydney and Newcastle markets and said that all agents interviewed expected heavy supplies and depressed prices to continue.

"Beanettes had been averaging between \$1 and \$1.40 per kilogram — well below the cost of production. However, a number of top quality lines from Gympie and other districts sold quickly and attracted a premium," he said.

"Most of the beans at the market were of fair to good quality but damaged, over mature, dirty or poorly presented lines moved slowly. They were sold at heavily discounted rates or held over to the next day."

Mr O'Hare said most of the Gympie beans were sold to specialist fruit and vegetable outlets, rather than supermarkets.

"I interviewed a range of retailers from different areas with throughput ranging between four and 100 cartons per week.

"I found retail prices varied from 99 cents to \$2.99 per kilogram with most prices ranging from \$1.29 to \$1.99 per kg."

Mr O'Hare said buyers were looking for beans that were well-coloured, picked at the right stage, straight, even, clean and with a long shelf life.

"There was little demand from buyers for beans in bags and agents preferred beans packed in polystyrene cartons.

"Many agents felt that choice, hand picked beans still attracted a premium — up to 40 to 60 cents per kilogram on the current market. Some buyers specifically asked for hand picked beans and a number of lines were marked 'hand-picked'.

"Although most beans at the markets were beanettes, most Sydney agents felt there was still a good market for top quality flat beans. Most of the Newcastle agents interviewed felt the market for flat beans was limited," he said.



## QFVG continues to collect levies from Woolworths' direct suppliers

Queensland Fruit & Vegetable Growers (QFVG) has begun collecting the second round of levies from Woolworths' direct growers suppliers, general manager Bob Granger has reported.

Mr Granger said Woolworths had supplied QFVG with a second list of their direct suppliers and the type and quantities of products involved.

QFVG's levy collections co-ordinator, Bill Harris, will send letters to those growers explaining the necessity of collecting the statutory levies, as well as an invoice for the monies owed.

Mr Granger said Woolworths would continue to supply QFVG with lists of their direct suppliers, as the company realised the importance of levies to the continued prosperity of the fruit and vegetable industry.

"Most growers believe everyone benefits from the services funded by the levies, which include research, promotion and lobbying politicians and governments, and so it is fair that all should pay," he said.

"The industry has been concerned for some time that a small minority of growers are not paying their way.

"The view is that it's unfair that growers who are responsible enough to pay their levies have to sponsor those who don't.

"The fruit and vegetable industry believes it is a case of 'one in, all in', and QFVG will be relentless in ensuring every grower meets their levy responsibilities.

"Payment of levies is required by law under the Fruit Marketing Organisation Act 1923 and Regulations."

Mr Granger said growers should report suspected cases of levy avoidance to Mr Harris for further investigation.

Growers who have any queries regarding levies can contact Mr Harris on (07) 213 2492.



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# Gympie means beans

CO-OPERATIVE marketing and a search for new markets are on the agenda as bean growers in Queensland's Gympie district — once the nation's leading supplier of winter beans — seek to regain market share lost to broad-acre producers in North Queensland.

At stake is the long term future of an industry worth between \$12 million and \$15 million a year, and at least 1000 picking and sorting jobs.

Gympie's is still predominantly a hand-picked bean industry, a factor that is both its handicap in competition with its highly mechanised competitors in the Burdekin and Bowen areas, and a potential market advantage if better quality beans can be obtained.

About half Gympie's 50 "serious" bean growers discussed their industry's future at a meeting on June 15, and heard local senior horticulturist with the Queensland Department of Primary Industries, Paul O'Hare, report on his recent study of bean markets in Sydney and Newcastle.

### Losing prices

Mr. O'Hare interviewed agents and buyers in the two markets to identify marketing opportunities for Gympie district bean growers.

"Growers' major concern is that bean prices have been below the cost of production for a long time, and if that situation continues, a lot of people are going to be hurt," Mr. O'Hare said.

"A few growers are trying to see their way clear by growing more and more beans, and that is depressing the market even further.

"Gympie is a traditional bean producing area, with large numbers

by Bernie Reppel

of smaller growers, even though there has been some rationalisation of numbers over recent years.

"The majority of growers handpick their beans and, where mechanical harvesting is done, the machines are nowhere near as big as the ones used in the bigger crops further north."

Mr. O'Hare's week in discussions with agents and buyers in Sydney and Newcastle uncovered the universal belief that heavy supplies and depressed prices for beans would continue.

"Beanettes had been averaging between \$1 and \$1.40 a kilogram — well below the cost of production," he said.

### Premium

"However a number of top quality lines from Gympie and other districts sold quickly and attracted a premium.

"Most of the beans at the market were of fair to good quality, but damaged, over-mature, dirty and poorly presented lines moved slowly.

"They sold at heavily discounted rates or were held over to the next day."

The encouraging thing, he said, was that most of the Gympie beans were sold to specialist fruit and vegetable outlets, rather than supermarkets.

Many agents felt that choice, hand-picked

beans still attracted a premium — up to 40 to 60 cents a kilogram on the current market — with some buyers specifically asking for hand-picked beans.

A number of lines were labelled "hand-picked".

"It was obvious speaking to buyers that, particularly in times of heavy supply, only the absolute top quality beans are going to bring any premium and that is the market we have got to target from Gympie, rather than go for big volumes," Mr. O'Hare said.

Other features of Mr.



Queensland DPI extension horticulturist of Gympie, Paul O'Hare, evaluates results of bean variety trials.

O'Hare's report to bean growers were:

- Buyers wanted beans that were well coloured, picked at the right stage, even, clean and with a long shelf life;
- Little demand for beans in bags, with agents preferring beans packed in

polystyrene cartons;

- Although most beans at the markets were "beanettes", most Sydney agents felt there was still a good market for top quality flat beans;
- Most Newcastle agents interviewed felt the

market for flat beans was limited.

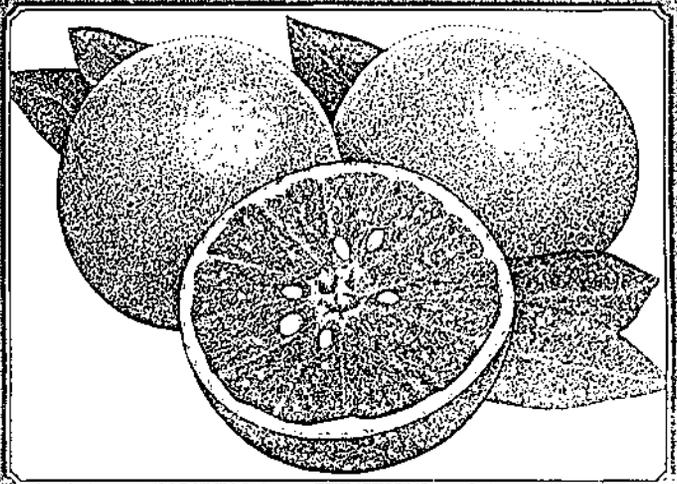
Growers at the meeting said that even though the area of group or cooperative marketing had seen both successes and failures, it was an area that should be investigated, particularly the potential to market larger lines of beans.

Growers also voted to look at the potential for finding new markets for Gympie beans and at diversifying into new lines of produce, even new lines of beans.

### Niche markets

Mr O'Hare said spring and autumn had already developed into niche markets for Gympie beans, being intervals between the peaks of bean production in northern and southern growing districts.

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# **GENETIC IMPROVEMENT IN GREEN BEANS**

**Spring 1991**

**P.J. O'Hare, Extension Horticulturist, QDPI, Gympie**

**Funded by the Gympie Fruitgrowers Association  
and the Horticultural Research and Development Corporation**

Fourteen green bean and three butter bean varieties were planted on the property of Percy Bichel, Blunder Road, Glastonbury via Gympie on 11 October 1991. Single adjacent rows were planted 90 m in length.

The seed suppliers and the varieties were:

- Northrup King - Goldmine (butter bean), BN071, BN080, BN082, BN090, BN093, BN094 (butter bean), Triumph
- New World - Goldrush (butter bean), Labrador, Brio, Bronco
- Yates - Superstar, Brigadier
- Gordon Smith and Sons - Broker, Novorus, Flovoro.

The varieties were evaluated for pod and bush characteristics. Higher prices are paid on the fresh market for pods which are very dark in colour, very smooth or glossy in surface texture and straight. Desirable pod length for beanettes is 11 to 13 cm. Upright bushes are easier to mechanically harvest. The varieties were also evaluated for ease of hand harvest.

A field day was held on 10 December 1991, at which growers and seed company representatives inspected and discussed the varieties.

A 40 m section of each row was mechanically harvested at the field day with a DGM Superlight bean harvester. The yields have been converted to a tonnes per hectare rate in the results.

## RESULTS

The best yielding green bean varieties were Bronco and Broker with 10.5 t/ha. Both had dark green, straight, very smooth pods with an average length of 13 cm, Broker had a slightly more spreading bush growth habit than Bronco. Hand pickers found both varieties easy to harvest.

BN090, one of the new varieties from Northrup King, also yielded well with 9.8 t/ha. The pods were very dark green, smooth and straight with an average length of 12.5 cm. The bushes were tall and upright. Hand pickers found BN090 very easy to harvest.

The current industry standard, Labrador, yielded 9.6 t/ha. Pods were very dark green, smooth and slightly curved with an average length of 12.5 cm. The bushes were upright. Hand pickers found the pods easy to harvest. Past trials have shown Labrador more suited to autumn or early spring production.

Superstar also yielded well with 8.8 t/ha. Pod colour was only mid green. The pods had a slightly rough surface texture, were straight and had an average length of 12 cm. The bushes were very upright. Hand pickers found the pods tended to break easily.

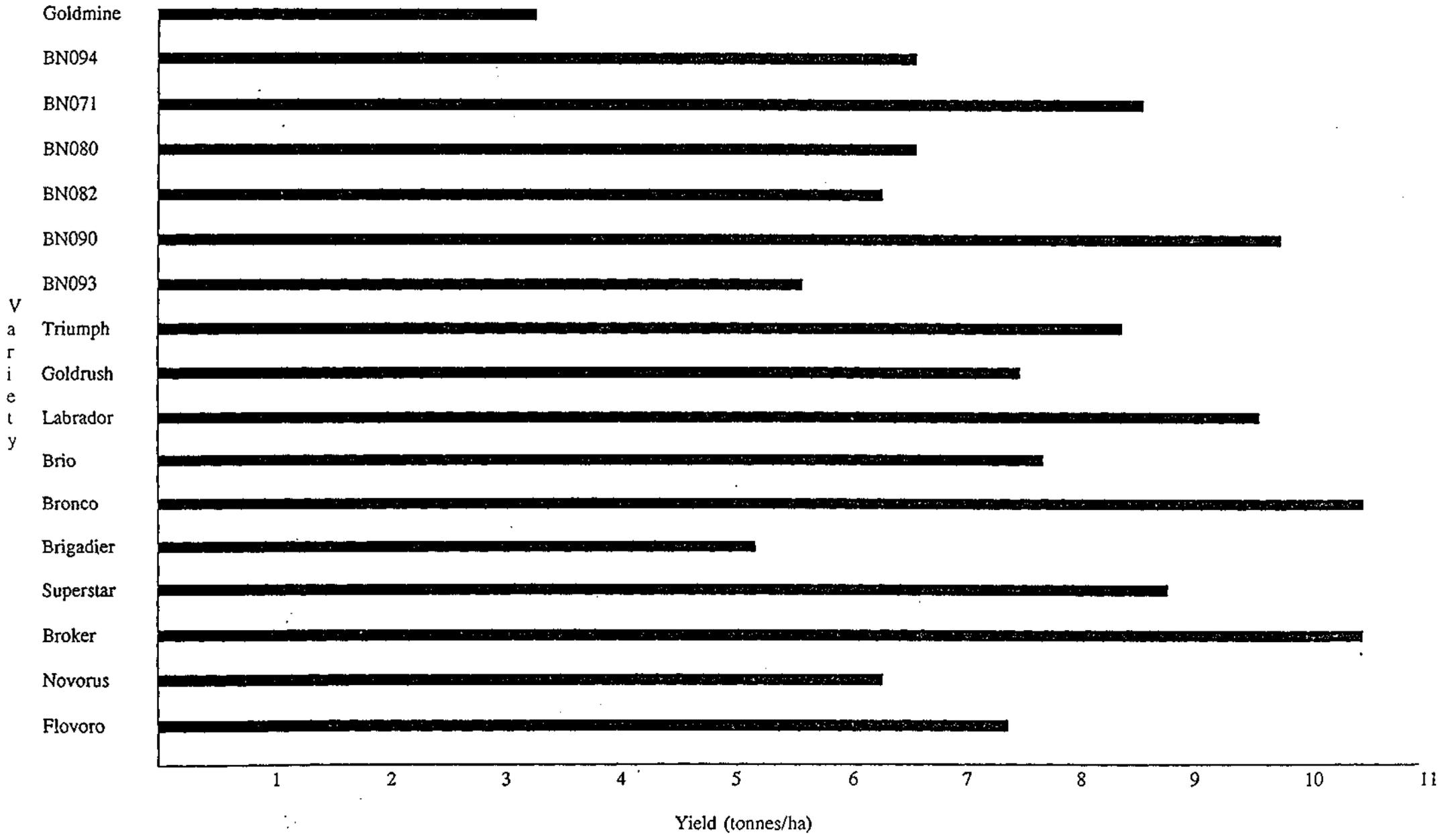
BN071 was the highest yielding of the longer podded varieties with 8.6 t/ha. The pods were dark green, smooth and slightly curved with an average length of 17 cm. The bushes were tall and upright. Hand pickers found the pods brittle and easily snapped.

Goldrush was the highest yielding butter bean with 7.5 t/ha. The pods were bright yellow, smooth, slightly curved with an average length of 14 cm. The bushes were very spreading which made mechanical harvesting difficult. Hand pickers found the pods easy to harvest.

BUSH VARIETY AND POD CHARACTERISTICS 10/12/91

	Average Bush Height cm	Bush Habit	Average Pod Length cm	Pod colour	Pod surface texture	Pod straightness	Ease of hand harvest
Goldmine	45	upright	15	bright yellow	smooth	slightly curved	good
BN094	48	spreading	13	pale yellow	smooth	slightly curved	good
BN071	48	upright	17	dark green	smooth	slightly curved	brittle pods snap early
BN080	48	spreading	15	dark green	slightly rough	straight	poda hard to pull off
BN082	43	very upright	11	dark green	smooth	straight	good
BN090	50	upright	12.5	very dark green	smooth	straight	very good
BN093	47	spreading	16	very dark green	rough	straight	Pods break easily, difficult to separate stalks, tangled bush
Triumph	42	spreading	14	mid green	smooth	slightly curved	beans tangled in bush
Goldrush	41	very spreading	14	bright yellow	smooth	slightly curved	good
Labrador	44	upright	12.5	very dark green	smooth	slightly curved	good
Brio	40	upright	13.5	dark green	very smooth	straight	good
Bronco	40	upright	13	dark green	very smooth	straight	good
Brigadier	44	upright	11	dark green	slightly rough	straight	difficult to pull pods off
Superstar	40	very upright	12	mid green	slightly rough	straight	Pods break easily
Broker	40	slightly	13	dark green	very smooth	straight	good
Novorus	48	upright	11.5	very dark green	glossy	very straight	difficult to pick
Flovaro	40	very upright	11.5	dark green	very glossy	straight	good

BEAN VARIETY YIELDS 10/12/91



**SYDNEY AND NEWCASTLE  
BEAN MARKETING STUDY**

**17 to 20 May 1993**

**P J O'Hare, Senior Horticulturist, DPI, Gympie**

**Report to the Gympie Fruitgrowers Association**

The marketing of beans in Sydney and Newcastle was investigated from Monday 17 to Thursday 20 May. Beans from New South Wales, Gympie, Gatton, Bundaberg and North Queensland were assessed and photographed and wholesalers, retailers, market reporters and exporters interviewed.

The study was undertaken to:

- to assess the current and future bean market,
- to analyse the requirements of buyers, and
- to investigate the potential for export.

## **Recommendations**

As a result of the study, it is recommended that:

- The Gympie Fruitgrowers Association investigate the potential and requirements of co-operative marketing to satisfy the changing needs of the market. This can either be done with an existing marketing group or by establishing a new organisation.
- Further studies be conducted to investigate the potential for establishing new domestic and export markets, and for expanding current markets. Where the potential exists, the necessary steps should then be taken to develop and maintain these markets.
- The potential for diversification into other bean and fruit and vegetable lines be investigated.
- Gympie bean growers concentrate on consistent top quality and presentation in order to attract a market premium.
- Regular, close liaison be maintained with all existing markets to maximise the market performance of Gympie beans.

## **Market Prices and Throughput**

Most of the beans at the wholesale markets were of fair to good quality. A number of top quality lines from Gympie and other districts sold quickly and attracted a premium. At the same time, damaged, over mature, dirty, or poorly presented lines moved slowly and were sold at heavily discounted prices or were or carried over to the following day.

Market reporters from the NSW Agriculture Flemington Market Reporting Service provided detailed information on prices and throughput on the current market and for the preceding six weeks. Information on prices and throughput prior to this is also available. A copy of the services offered and the prices charged is attached to the report.

The reporters collect information on actual sales transactions from agents and merchants. The collection method ensures that coverage is representative of the full range of sales. Information is cross checked with buyers and validated by checks on sales dockets and

other records. Sales information is collected in the form of volume sold at each price. Information covers all sales transactions, including sales between wholesalers and resales.

Throughput data is compiled from manifest documents which are presented at the main gates by all those carrying produce into the market.

Beans were heavily supplied at the market from New South Wales, Gympie, Gatton, Bundaberg and north Queensland during the study period. There were 4820 cartons and 337 bags of beans received at the market for the Monday. Over 5000 cartons were also received for the Thursday, although final figures were not obtained. Movement was slow and beans failed to clear.

Receivals for the previous six weeks are presented in Table 1. No information was available for the week ended 30/4/93.

	Receivals for weeks ended					
	14/5	7/5	23/4	16/4	9/4	2/4
Bags	1534	1101	1894	1794	973	1495
Cartons	14987	13814	10199	10225	9519	11340

The average prices for flat beans, round beans and beanettes from Queensland and NSW on the Monday 17/5/93 market and for the previous six weeks are shown in Table 2. The prices are all well below the cost of production (The cost of production is estimated by different sources as being between \$1.80 and \$2 per kilogram). No information was available for the week ended 30/4/93.

**Table 2** Average prices for Monday 17/5/93 and the previous 6 weeks

Product	State	Average weekly price (\$ per kg) for weeks ended						
		17/5	14/5	7/5	23/4	16/4	9/4	2/4
Flat beans	NSW	1.10	1.00	1.15	1.05	1.05	1.08	1.03
	QLD	1.20	1.27	1.22	1.14	1.10	1.14	1.13
Round Beans	NSW	0.83	0.84	1.00	0.84	0.72	0.84	0.89
	QLD	0.77	0.92	1.09	0.81	0.77	0.71	0.74
Beanettes	NSW	1.00	1.00	1.27	1.11	1.03	1.01	1.09
	QLD	1.30	1.32	1.36	1.22	1.21	1.12	1.18

## Newcastle

The Newcastle Chamber of Fruit and Vegetable Industries provided details on bean receivals for Monday 17/5/93 and Wednesday 19/5/93. There were 431 cartons and bags received for the Monday market and 160 for Wednesday.

## **Wholesaler interviews**

Representatives from the following wholesalers in Sydney and Newcastle were interviewed on the marketing of beans:

### **Sydney**

Bromley Brothers  
Roy Cave and Sons  
Frank Herbert  
Sid Long  
Bill Patton  
John Tucker and Sons

### **Newcastle**

H.V. Lovett  
Kevin Robson  
Select Fruit  
Widders Brothers

### **Future of the bean market**

All wholesalers interviewed foresaw heavy supplies and depressed prices continuing unless adverse weather conditions occurred. One wholesaler felt that large growers will need to survive on small margins. Another stated that there was a definite spot on the market for Gympie growers provided the quality could be maintained.

### **Future in the market for the small bean grower**

Most, if not all, bean growers in the Gympie district produce and market small quantities in comparison to a number of the major suppliers to the market. Most wholesalers felt that Gympie growers needed to concentrate on aiming at a top quality product and presentation if they were to survive. Presentation and a reputation for quality were seen as the best form of promotion for individual lines. One wholesaler stated that the small grower has to be willing to do that bit extra.

A number of wholesalers felt that the small grower couldn't compete. One wholesaler stated that Gympie growers should look for niche markets such as flat beans, butter beans, long round beans like Jade or peas. Another felt that Gympie growers should diversify completely out of vegetables.

### **Affect of direct buying by the chains on the market**

Opinions amongst the wholesalers varied as to the effect that direct buying by the chains was currently having on the market. There was a consensus that it did have the potential to be a major depressing effect. The chains have succeeded in capturing a significant market share. They are mainly interested in dealing with suppliers who could provide them with long consistent lines.

## **Sales breakup**

Most of the beans from Gympie were being sold to specialist fruit retailers. This included large fruit barns as well as small to medium size fruit shops. A number of wholesalers stated they serviced retailers specialising in top quality produce with some of the better bean lines from Gympie. One Sydney wholesaler interviewed who was handling beans from Gympie, Gatton and north Queensland was supplying supermarket chains with the longer lines as specials.

There was also much selling and distribution of the longer bean lines between wholesalers within the markets and between wholesalers in the Brisbane, Sydney, Newcastle and Melbourne markets.

## **Ideal packaging and presentation**

All wholesalers interviewed agreed that styros were the preferred package. Most also mentioned plastic lids. No one wants beans in bags as they present the beans poorly and there is too much damage to the beans.

A number of wholesalers mentioned that the beans on top should be straightened to improve presentation. Special stickers such as 'hand picked' were also thought to improve presentation.

## **Most important quality characteristics in selling beans**

The most important quality characteristics in selling beans according to the wholesalers are:

- . colour,
- . picked young,
- . even,
- . straight,
- . shelf life, and
- . clean.

## **Market premium for hand picked beans**

Opinion varied amongst wholesalers as to the premium on the market for hand picked beans. Most wholesalers felt there was a premium of 20 to 40 cents per kilogram for good quality hand picked beans. Two wholesalers felt the premium on the current market could be up to 50 to 60 cents per kilogram. Another two wholesalers believed there was no premium for hand picked beans over good quality machine picked beans. One wholesaler stated that he has buyers who only want hand picked beans

## **Market potential for flat beans**

Most of the Sydney wholesalers felt there was still a good market for flat beans provided they were picked young. One wholesaler mentioned the flat bean market was particularly to retailers servicing older customers. Most of the Newcastle wholesalers felt that the market for flat beans was small or limited.

## **Retailer Interviews**

Most of the lines of Gympie beans were sold to specialist fruit and vegetable retail outlets, rather than supermarkets. A range of small and large specialist retailers in shopping centres and on major roads were interviewed. An inner western Sydney suburb and a northern Sydney beach suburb were chosen to provide a cross section.

Current throughput varied from 4 to 200 cartons per week. The retail price varied from 99 cents to \$2.99 per kilogram, with most prices between \$1.29 and \$1.99 per kilogram.

Depending on their clientele, most retailers found their bean sales slowed markedly when prices climbed above this range. One retailer in an upmarket shopping centre with beans priced at \$1.99 per kilogram, found his sales halved as soon as he went over \$2 per kilogram. Another retailer on a busy suburban road currently selling beans at \$1.29 per kilogram stated that his throughput dropped from 200 to 10 cartons per week when the price rose to \$1.99 per kilogram. A nearby specialist ethnic retailer on the same road was selling 10 cartons of beans a week at \$2 per kilogram. At \$1 per kilogram, he can sell 60 cartons a week. He has no sales when the price rises above \$2.50 per kilogram.

Many of the retailers had the beans prominently displayed as specials at the front of the shop. Most of the beans on display were of fair to good quality. Some had the beans for sale loose and in either 500 gram or 1 kilogram prepacks. Some of the 500 gram prepacks were for sale at a slightly higher price. Sales were evenly divided between the loose beans and the prepacks.

None of the retailers interviewed showed a preference for beans from any particular district. Most of the retailers purchased their beans through a regular wholesaler and relied on him providing them with beans of the desired quality. Provided the quality was there, they were unconcerned with their district of origin.

## **Exporter Interviews**

### **Antico International**

John Antico and Hugh Molloy

Antico International has contacts throughout East Asia. They see the Hong Kong market as having more potential than Singapore. The Singapore market is heavily supplied with cheap beans from Indonesia and Malaysia.

The Hong Kong market would need to be developed. A sample container of 110 x 10 kg cartons would need to be sent to test the market. Transport would have to be by air to ensure shelf life at the destination. Sea transport would take 2 to 3 weeks. It would cost between 90 cents and \$1 per kilogram to transport the beans to Hong Kong. The waxed fibreboard cartons would be preferred as the styros would take too much space in the container.

Even if the market is developed, other growers and marketers may capture the market if they are able to provide similar quality beans at a cheaper price.

Many of the international resorts in Hong Kong are also looking more for the fine European style bean.

### **E. Pardy and Sons**

Chris Pardy

There is not a major export market at present for beans. They had bought 10 cartons that morning to send to Noumea.

Singapore is a very tough market. It is supplied with beans by Indonesia and Malaysia.

There is possible potential in Hong Kong. They have buyers of other produce there but the market would need to be developed.

They see more potential in New Zealand. They supply direct to a number of retailers there.

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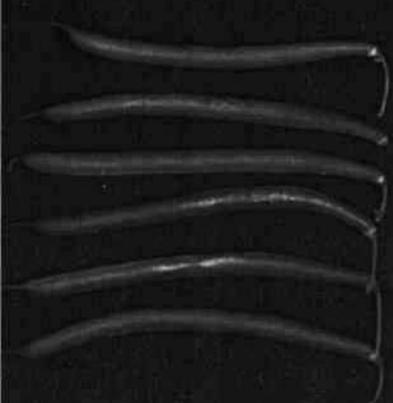
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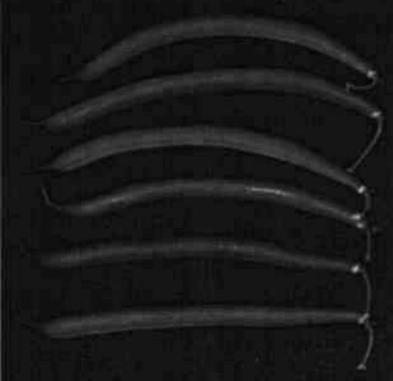
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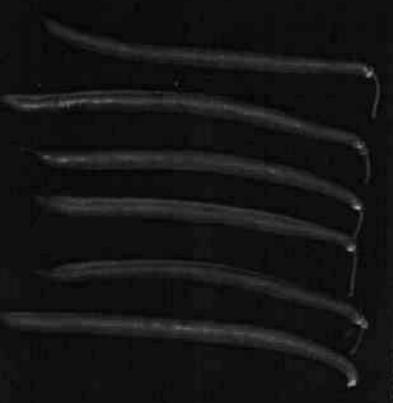
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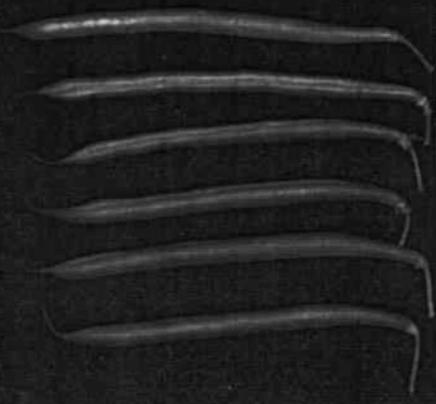
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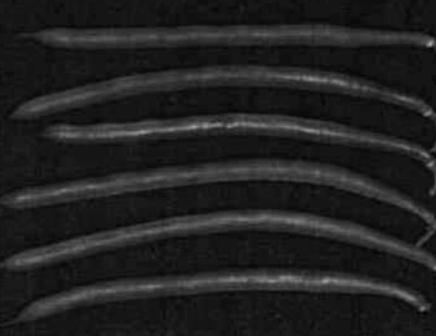


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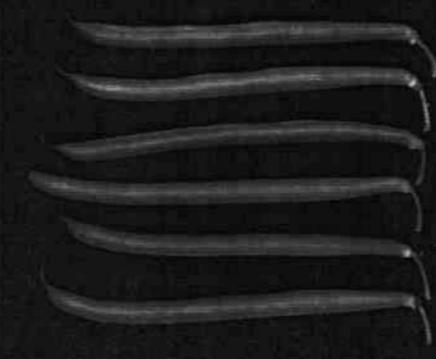


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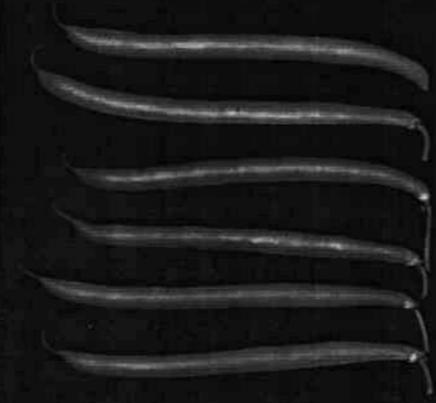


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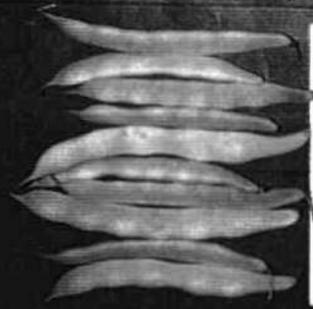


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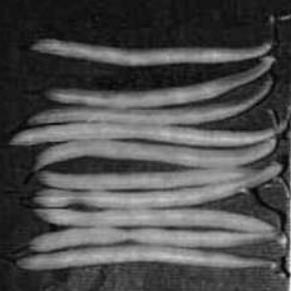


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LABRADOR

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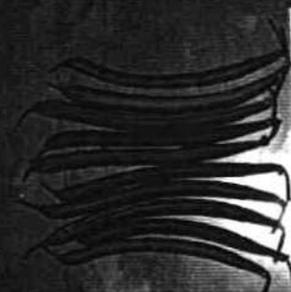
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LABRADOR

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TRIUMPH

# **GENETIC IMPROVEMENT IN GREEN BEANS**

**Spring 1992**

**P.J. O'Hare, Senior Horticulturist, QDPI, Gympie**

**Funded by the Gympie Fruitgrowers Association  
and the Horticultural Research and Development Corporation**

Seventeen green bean and two butter bean varieties were planted on the property of Percy Bichel, Blunder Road, Glastonbury via Gympie on 18 September 1992. The green bean varieties consisted of thirteen beanettes, two round beans and two flat beans.

The seed suppliers and the varieties were:

- Sunland Seeds - Kentucky Wonder (flat), ESP (round), GS81, GS25G, GS25 and Broker (all beanettes)
- Northrup King - BN030, BN069 (both butter beans), BN072 (flat), BN071 (round), BN060 and BN090 (both beanettes)
- Yates - Brigadeer (beanette)
- New World Seeds - NW148, Labrador and Bronco (all beanettes)
- Royal Sluis - Acapulco, Narbonne and Nerina (all beanettes).

Single adjacent rows 150 m in length were planted. Growing conditions were mostly hot and dry. All varieties germinated and established well except GS25G and Brigadeer.

The varieties were evaluated for ease of management and for market quality characteristics. Upright bushes are easier to mechanically harvest. There is a strong market preference for beans with a very dark colour. The market also prefers beans which are straight and with a smooth surface texture and a long shelf life.

Pod colour, surface texture and straightness were determined by an experienced, impartial panel of judges. Shelf life was determined by storing the beans at 5°C and recording when they deteriorated beyond what was judged to be an acceptable quality for consumers.

The varieties were also to be screened for susceptibility to rust but the trial was almost rust free.

The trial was hand harvested. Kentucky Wonder and BN072 were harvested on 13, 16 and 19 November. BN071 was harvested on 13 and 16 November. All the other varieties were harvested on 16 November. A severe hailstorm on the night of 19 November obliterated the trial and prevented any further harvests. The yields have been converted to tonnes per hectare in the results.

A field day was held on 12 November 1992, at which growers and seed company representatives inspected and discussed the varieties.

## RESULTS

The highest yielding variety was the flat bean BN072 with 13.2 t/ha from three harvests. Pods were pale green, slightly curved, with a slightly rough surface texture, an average length of 16 cm and a shelf life of 26 days. It had a spreading bush habit. The pods were easy to hand harvest.

The next highest yielding variety was the long round podded bean BN071, also known as Jade, with 9.1 t/ha from two harvests. Pods were dark green, smooth, slightly curved with an average length of 17 cm and a shelf life of 16 days. The bushes were slightly spreading. Hand pickers found the pods to be brittle and they snapped easily.

The highest yielding beanettes were Bronco, Broker and BN090, also known as Chrissette, each with 8.2 t/ha from one harvest. Both Broker and Bronco pods were mid green, very smooth and very straight with an average length of 14 cm and a shelf life of 16 days. Broker had a slightly more spreading growth habit than Bronco. Hand pickers found Bronco easy to harvest but Broker pods were tangled in the bush.

BN090 had dark green, smooth, straight pods with an average length of 13 cm and a shelf life of 12 days. Bushes were tall and upright and pods were very easy to hand harvest.

The current industry standard, Labrador, yielded 4.6 t/ha from one harvest. Pods were very dark green, smooth and slightly curved with an average length of 13 cm and a shelf life of 16 days. The bushes were upright. Hand pickers found the pods easy to harvest. The only other bean varieties with very dark green pods were GS25G and NW148.

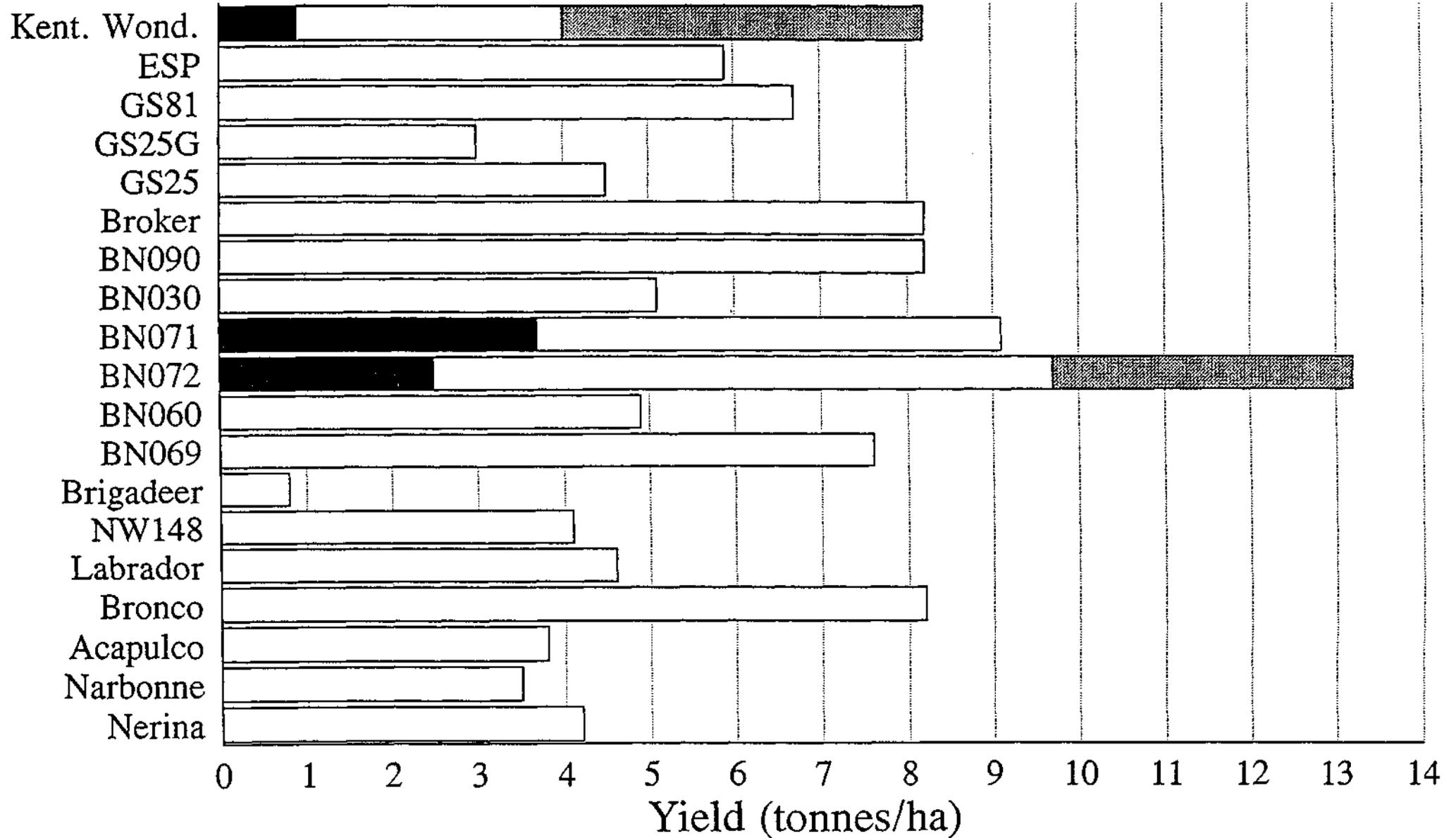
The highest yielding butter bean was BN069 with 7.6 t/ha from one harvest. Pods were very bright yellow, very smooth and very straight with an average length of 13 cm and a shelf life of 23 days. The bushes were slightly spreading. Hand pickers found the pods easy to harvest.

**BEAN VARIETY BUSH AND POD CHARACTERISTICS      SPRING 1992**

	Pod type	Average bush height (cm)	Bush habit	Average pod length (cm)	Pod colour	Pod surface texture	Pod straightness	Ease of hand harvest	Shelf life (days)
Kentucky Wonder	flat	48	very spreading	18	pale green	slightly rough	slightly curved	hard to pull off	26
ESP	round	45	slightly spreading	15	mid green	slightly rough	very straight	easy	21
GS81	beanette	42	slightly spreading	11.5	dark green	very smooth	strongly curved	easy	21
GS25G	beanette	45	slightly spreading	14	very dark green	smooth	slightly curved	easy	12
GS25	beanette	45	slightly spreading	14	dark green	smooth	slightly curved	easy	12
Broker	beanette	40	slightly spreading	14	mid green	very smooth	very straight	Pods tangled in bush	16
BN090 (Chrissette)	beanette	48	upright	13	dark green	smooth	straight	very easy	12
BN030 (Goldmine)	butter bean	42	upright	14.5	bright yellow	slightly rough	slightly curved	easy but low in bush	16
BN071 (Jade)	round	45	slightly spreading	17	dark green	smooth	slightly curved	brittle pods snap easily	16
BN072	flat	45	spreading	16	pale green	slightly rough	slightly curved	very easy no stalks	26
BN060 (Rapier)	beanette	45	upright	10.5	mid green	slightly rough	very straight	very difficult	10
BN069	butter bean	42	slightly spreading	13	very bright yellow	very smooth	very straight	easy	23
Brigadier	beanette	40	slightly spreading	11	dark green	slightly rough	straight	fair	21
NW148	beanette	40	slightly spreading	14	very dark green	smooth	straight	easy	16
Labrador	beanette	42	upright	13	very dark green	smooth	slightly curved	easy	16
Bronco	beanette	40	upright	14	mid green	very smooth	very straight	easy	16
Acapulco	beanette	42	upright	13.5	dark green	smooth	slightly curved	easy	21
Narbonne	beanette	45	upright	14	dark green	smooth	straight	Pods tangled in bush	23
Nerina	beanette	45	upright	13.5	dark green	smooth	straight	hard	26

# BEAN VARIETY YIELDS - SPRING 1992

13/11/92  
 16/11/92  
 19/11/92



BRIO

LABRADOR

11-12-1991

GOLDRUSH

SUPERSTAR

LABRADOR

11-12-1991

BRIGADIER

BROKER

LABRADOR

11-12-1991

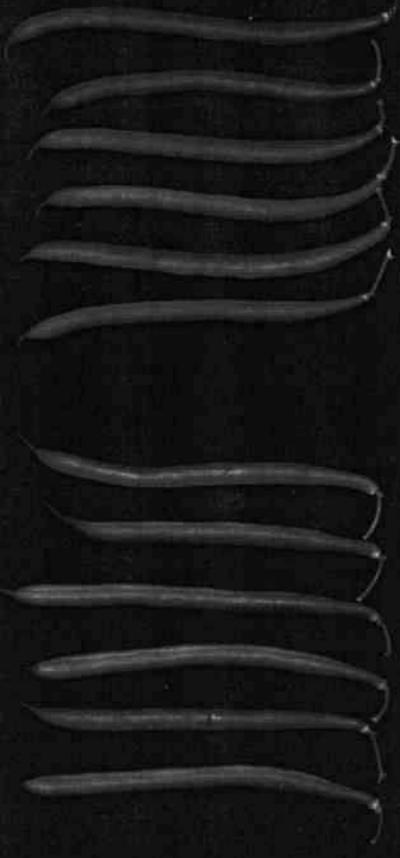
BRONCO

NOVORUS

LABRADOR

11-12-1991

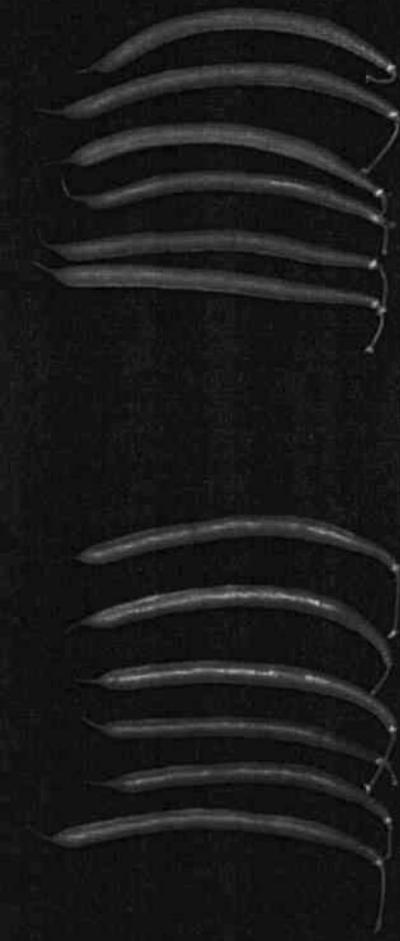
FLOVORO



NERINA

MARBONNE

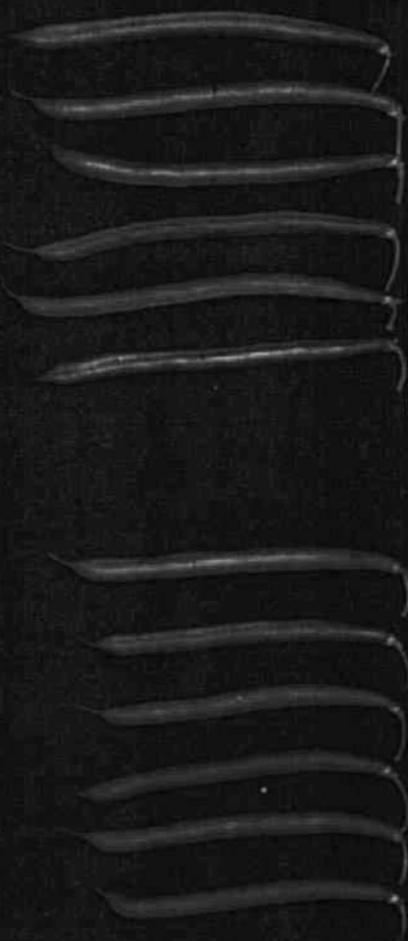
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ACAPULCO

LABRADOR

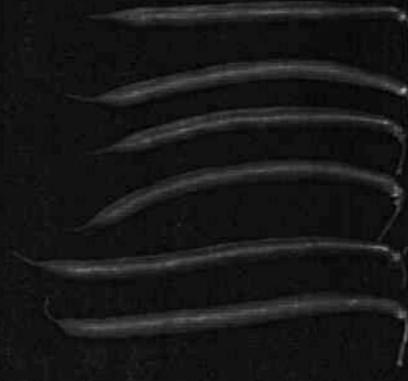
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BRIGADEER

NW 148

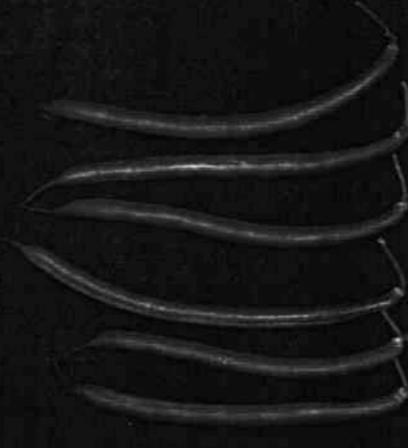
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GS 25

GS 25G

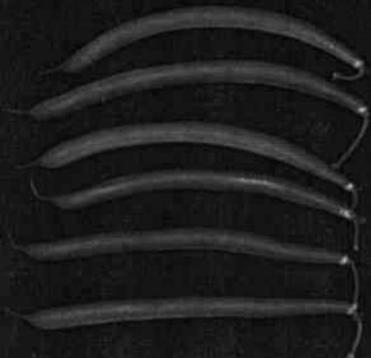
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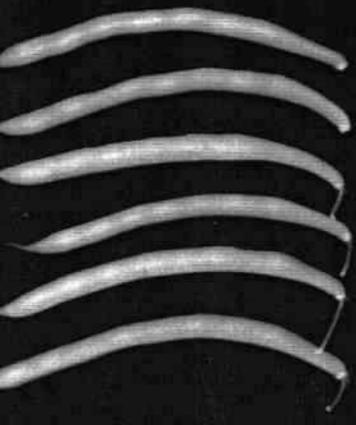


BN060

11-11-1992

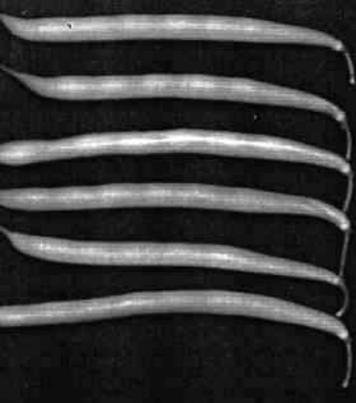


LABRADOR



BN030

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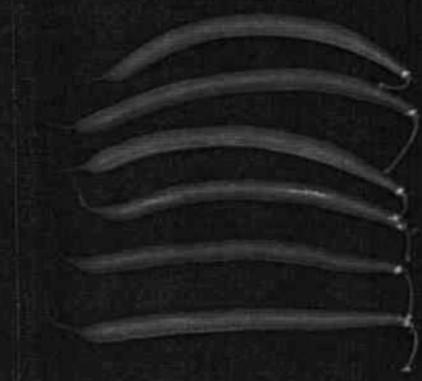


BN069

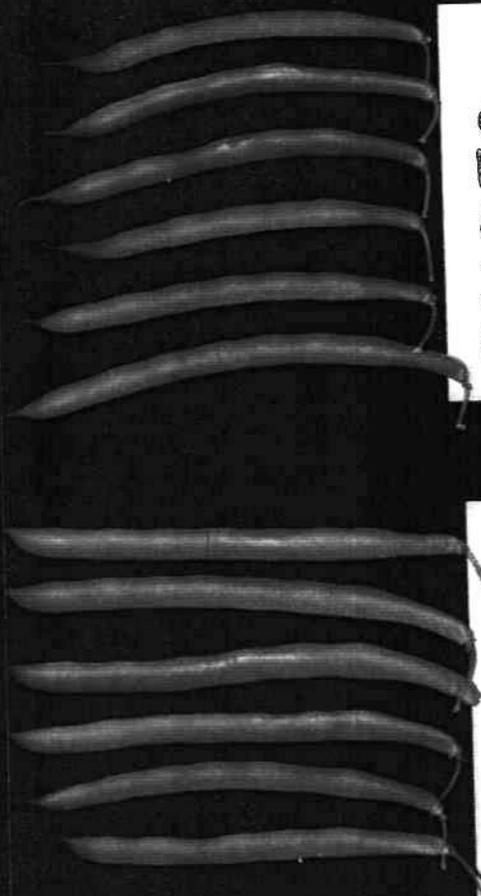


GS81

11-11-1992



LABRADOR



KENT. WÓN.

11-11-1992

BN072