grower solutions

brassica update

LEFROY VALLEY

May 2006

nevada the heavy weight performer

by Damon Atkinson - Technical Sales Manager, South Queensland 0409 722 172

Lefroy Valley's cauliflower range has expanded with our latest introduction "**Nevada**". Nevada is an exciting new release for warm season production. Over the past two years in Queensland and three years in Western Australia, Nevada has shown outstanding results. In Queensland Nevada has been trialed extensively in the Lockyer Valley, Darling Downs and the Stanthorpe regions, with trials showing that Nevada will set new standards for warm season harvest.

Nevada

Plants have strong vigour with a good frame giving curds excellent self cover. The curd quality is exceptional; producing a curd which is snow white with good depth, excellent tuck and great weight.

Nevada is definitely a variety that all growers need to look at over the next season.

For more information on Nevada please contact Damon Atkinson on 0409 722 172, or Warren Ford on 0407 733 663.

Werribee breaking news...

After carefully trailing a few lines in the Werribee area with the help of local growers, new improved varieties are soon coming to the market. Screening trials were done in the period of 3 years and results are very promising.

Cauliflower **CLF 4727** finds its time slot for late autumn to early winter harvest and early spring, maturity week of 14 to 15. CLF 4727 shows attributes which LV is looking for and they are: strong erected habit, jacket in the spin, excellent covering, white, smooth and heavy curd. CLF 4727 has been planted semi-commercially this year on a number of farms in the area. One more to mention is Fresco for winter harvest and maturity of 15-16 weeks. This variety has gone commercial this year but only on a limited scale. Updated suggested harvesting and sowing guides have been developed for the area.

Broccoli, **Mamba** performed very well over the mid winter harvest timeslot. Consistent results on the Peninsula settles its time-slot in Werribee for winter harvest. Good spot to mention a new variety for winter named **Cobra.** This line has shown good adaptability for winter through to early spring harvest.

Good potential and attributes in the trial push this variety up on the list to be semi commercially introduced for this winter season. **BRC5757** a new CMS Marathon style broccoli performed well from early winter harvest to late spring. BRC5757 is currently in a number of semi-commercial trials throughout Werribee.

And one more thought - cabbage **Burton** set up market standards, but two new varieties are coming, **Landini (4172**) and **Puccini (4171)** with extreme toughness for Werribee weather.

Puccini has been placed in a number of semi commercial screening trials this season, for autumn harvest with good internal quality.

Maturity is 110 days and is suitable for fresh market. Strong against Xanthomonas.

Landini is also for autumn harvest with early maturity (90 days) and an excellent holding ability is suitable for fresh and processing market. Resistant to Fusarium.

Limited commercial seed has been marketed this season. Late summer and autumn trials in Gippsland with both varieties this season have been excellent.

by Kosta Popov - Southern Regional Manager
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CABBAGE news

by Warren Ford - Technical Sales Manager, Queensland 0407 733 663

Red Cabbage

Red Storm is an old favourite with a large uniform plant style and a flat round head shape with deep bright red colour. Red Storm has good field holding ability, with outstanding durability which has made it the market standard.

Green Cabbage

Viking (CAW 4649) Is a new variety which has under gone extensive field trials, and only recently been named and released semi commercially.

It is a medium maturing cabbage 75 to 85 days from transplant, with a flat round head shape and dense internal characteristics. Field holding ability is excellent and it has medium heat tolerance. Viking will suit both the processing and fresh market.

brassica news from Western Australia

by Allan MacKinley - Regional Sales Manager - Western Australia 0407 987 167

BROCCOLI

Viper performed well through summer and into late autumn. Even in Manjimup, our coldest production area, it harvested well into early May, after which the quality dropped off rapidly. **Mamba** harvested well in the South West last season, with excellent colour, weight and fine beads. It is about five days later than Endurance and is an excellent choice as a winter variety.

BRC5757 has looked good in Perth harvested in June. It is comparable to the standard in yield and quality and is about 5 days earlier in maturity. Seedlings were also stronger than those of the standard.

Results were good from autumn to spring harvest.

CABBAGE

Beverly Hills continues to perform well in all seasons and is a reliable standard. **Romanov** is standing out as an excellent "Red" variety for use in all seasons. It has excellent internal and external colour, firm deep round heads and gets to about 2kg in size.

CAULIFLOWER

Celsius performed well for many growers in trials and commercial plantings in both Perth and the South West during the summer. It is earlier than Summer Love which is a saving on growing costs especially on Diamond Back Moth control.

Gibraltar had mixed results, with outstanding results in some trials and less satisfactory results in other trials. CLF 4282 performed well in trials harvested in January, in Manjimup. The curd quality was excellent, weighed 1.1kg and was earlier maturing than both Summer Love and Monarch. **Lisbon** is a new autumn harvest variety which has performed well throughout WA during autumn. The best results were achieved in the South West harvested in April and early May last season. In Perth good results were obtained when harvested in May and early June.

Lisbon has harvested well in initial April harvested crops this season.

Like most modern hybrids the plants need to be pushed early in order to establish a strong plant. **Amsterdam** is currently performing very well in Perth against the standard variety. It is about 5 days earlier than Liberty. This is an older variety which has always done well as a fresh market variety in Perth for spring and autumn harvest. Trials are continuing to test its performance in the winter.

Harvests in April have been good - watch this space

POST HARVEST OF BROCCOLI and CAULIFLOWER

Broccoli

Growers aim to produce broccoli with dark or bright green closed florets, with domed heads which are compact (firm to hand pressure). Most broccoli is cut with a stalk 8-10cm length which is neat and cleaned of leaves.

The information below is based on current post harvest research. **Optimum Temperature and Relative Humidity (RH)** Low temperature is extremely important to achieve adequate shelf-life in broccoli. A temperature of 0°C with >95% RH is required to optimize broccoli shelf life (21-28 days). Shelf life does vary between varieties. Storage life drops as cooling temperatures increase; heads stored at 5°C can have a storage life of 14 days; storage life at 10°C is about 5 days. Broccoli is usually rapidly cooled by liquid-icing, although Hydrocooling and forced-air cooling are also used.

Temperature management during distribution is more critical than with iced broccoli.

Freezing Injury

Freezing injury may occur if salt is used in the liquid-ice cooling slurry or if non iced broccoli is stored below - 1°C. Frozen and thawed areas on the broccoli florets appear very dark and translucent, and may turn brown after thawing.

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These areas of damage are very susceptible to bacterial decay, and therefore breakdown very rapidly.

Rates of Ethylene Production and responses to Ethylene Broccoli produces very low levels of ethylene, <0.1 µL/kg/hour at 20°C.

Broccoli is extremely sensitive to exposure to ethylene. It is therefore extremely important to ensure that broccoli is not stored in the same cool room as a crop which produce medium to high levels of ethylene. Do not mix loads such as apples, melons and tomatoes with cauliflower.

Bead yellowing is the most common symptom. Exposure to 2 ppm ethylene at 10°C reduces shelf-life by 50%.

Physiological Disorders

Hollow stem. Hollow stem is an open cavity in the stem at the cut surface which may become discoloured; and may be an entry area for pathogens. Growing conditions and variety selection affect development of this disorder.

Floret (bead) yellowing. The florets are the most perishable part of the broccoli head; yellowing may be due to over-maturity at harvest, high storage temperatures, and/or exposure to ethylene. Any development of yellow beads makes the crop un marketable. Bead yellowing due to senescence should not be confused with the yellow-light green color of areas of florets not exposed to light during growth, sometimes called "marginal yellowing".

Brown floret (bead). Is a disorder in which areas of florets do not develop correctly, die and lead to brown discoloured areas. This is thought to be caused by plant nutritional imbalances and changes in water availability and temperature.

Pathological Disorders

Bacterial decay. There are various soft-rot causing organisms (*Erwinia, Pseudomonas*) which may affect broccoli shelf-life. Rots due to these organisms are usually associated with physical injury.

Fungal pathogens. Although not as common as bacterial rots, gray mould rot (*Botrytis cinerea*), black mould and Pin rot (*Alternaria spp*.) can infect broccoli heads; this may occur under rainy, cool growing conditions.

CAULIFLOWER

Optimum Temperature and Relative Humidity (RH) 0°C and 95-98% R.H. are the optimal storage conditions for cauliflower.

Storage of cauliflower is generally not recommended for more than 3 weeks for good visual and sensory quality. Wilting, browning, yellowing of leaves, and decay are likely to increase following storage beyond 3-4 weeks or at higher than recommended storage temperatures.

Freezing Injury

Freezing injury will be initiated at - 0.8°C. Symptoms of freezing injury include a watersoaked and greyish curd and watersoaked or wilted crown leaves. The curd will become brown and gelatinous in appearance following invasion by soft-rot bacteria.

Rates of Ethylene Production and responses to Ethylene Cauliflower produces very low levels of ethylene, <0.1 µl/kg/hour at 20°C

Cauliflower is highly sensitive to exogenous ethylene, the marketable quality will drop off rapidly due to yellowing and loss of wrapper leaves. Discoloration of the curd and accelerated yellowing and detachment of wrapper leaf stalks will result from low levels of ethylene during distribution and short-term storage. Do not mix loads such as apples, melons and tomatoes with cauliflower.

Physiological Disorders

Hollow stem Hollow stem is an open cavity in the stem at the cut surface which may become discoloured; and may be an entry area for pathogens. Growing conditions and variety selection affect development of this disorder.

Pathological Disorders

Diseases are an important source of postharvest loss, particularly in combination with rough handling and poor temperature control. A large list of bacterial and fungal pathogens cause postharvest losses in transit, storage, and to the consumer. Bacterial Soft-Rot (primarily *Erwinia* and *Pseudomonas*), Black Spot (*Alternaria alternata*.), Grey Mold (*Botrytis cinerea)*, and *Cladisporium* Rot are common disorders.

Physical Injury

Harvesting should be done with great care to prevent damage to the highly sensitive curds. Cauliflower should never be handled by the curd portion of the head. Cauliflower should not be allowed to roll or scuff across a harvest-conveyor belt, or table. Bruising is very common and leads to rapid browning and decay when attention to careful harvest and handling practices are not followed.

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