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CROP & FOOD RESEARCH
Mana Kai Rangahau

Globe artichokes - an ancient crop offering new opportunities

Crop & Food Research is exploring the potential for this plant to be grown on a commercial scale to meet increasing interest among the local restaurant trade and the fresh export market.

The globe artichoke (*Cynara scolymus*) is a herbaceous perennial and thistle-like member of the Compositae family. It is also called French artichoke which causes confusion with either Jerusalem artichokes (*Helianthus tuberosus*) or the Japanese artichoke (*Stachus sieboldii*), which are both root vegetables. It very likely originated in the Mediterranean, but it is not known as a wild plant and some believe that the plant could have originated from *Cynara cardunculus* or wild cardoon. It was certainly known to the Romans as a food plant. The plant does not require hot summers, in fact the quality of the flower heads is better when grown in an area where the climate is more moderate than the Mediterranean. Globe artichokes are grown in Europe from Italy, France and Spain to the Netherlands, and large commercial areas exist in California.

The crop grows well in New Zealand in areas where winters are mild, but it is not grown on a commercial scale although occasionally attempts to export the crop, either fresh or frozen, have been made. There is increasing interest in the crop by the local restaurant trade.

The flower head of the plant is mostly green with an occasional purple flush. It has many overlapping bracts. The average head weight ranges from 200 to 300 g and there should be very little discoloration. Although mostly eaten fresh, globe artichokes are also frozen, pickled, brined, used in stews, cooked and canned or preserved in oil.

Extensive promotion my lead to the development of a local market. For growers interested in exporting there are possible market outlets in California. The USA imports from Mediterranean countries to meet increasing consumer demand, but this requirement could be partly met by New Zealand produce because harvesting in New Zealand starts in February. Restaurants in Japan offering French cuisine may also be interested in New Zealand-grown artichokes, but this market would need a great deal of development. Research over the last few seasons at the Hawke's Bay Research Centre has been limited to observation trials only, but trials indicated that the crop grows well in Hawke's Bay. Cultivar trials in the Bay of

Plenty featuring Green Globe, Emerald and some Italian breeding lines also produced strong plants.

Globe artichokes are not frost hardy and during winter tops die down. Regrowth occurs in spring.

Growing conditions

Globe artichokes are deep rooting and grow best on light, textured, free-draining soils, but they need a lot of space. The plants grow very tall and are wide so whilst a spacing of 0.5 m by 1.5 m is possible, it should ideally be 1.0 by 1.5 m. Although no specific fertiliser recommendations are available, the application of NPK, 12:10:10, at a rate of 400 kg/ha as a base dressing is a useful guide. However, a soil analysis should be carried out prior to sowing. A side dressing of nitrogen could be applied subsequently depending on the results of soil nutrient analyses.

Cultivars

The main variety available from local seed sources in New Zealand is the Green Globe type. It is very variable both in terms of growth and fruit size so it may not produce material suitable for export. It is also not suitable for processing as it has no heart and the bracts are very loose.

New cultivars such as Emerald and new hybrid breeding lines from Italy were also evaluated but none of these was completely suitable. While the latter types had a better fruit shape than Green Globe they were later maturing and lower yielding. It would be advisable to evaluate several cultivars before choosing one for large scale production. Local seed sources mainly stock Green Globe. Other cultivars would have to be imported.

Crop establishment

Plants are usually propagated in spring and planted out as soon as any danger of frosts is over. Suggested spacings are 1 m in-row and 1.5 m between rows. The effect of spacing and soil nutrients on fruit quality and size requires investigation.

Due to the lack of consistent growth from seed-propagated cultivars, vegetative propagation by means of cuttings is often tried. This allows good plants to be selected from existing stocks, but it also increases the risk of virus infection and can result in either high plant mortality or yield reduction. The use of cuttings, however, makes planting schedules more accurate and subsequent plant growth and yields more even. The use of hybrid seed lines may improve establishment.

Although most plantings are planned as perennial crops and, therefore, may yield less in the first season, some growers plant globe artichokes as an annual crop.

Yields and harvesting

Heads are harvested when they are immature, before the bracts open up. The first harvest may take place about 70-80 days after planting. Potential yields are around 1.5 and 2 kg/plant with a fruit size of about 200 g.

Globe artichokes store well at 2-4°C for about two weeks without any visible loss in quality.

Weed control

There is no registration for chemical weed control but the majority of the weeding can be effectively carried out by mechanical or manual means. The stale seed bed technique will assist in removing many weeds just prior to sowing.

Pest and diseases

No diseases were recorded during the Hawke's Bay trials, but aphids and mites caused some damage and insect chewing damage was also present. Although insects can be a problem, they are readily controlled by commercially available insecticides.

Irrigation requirements

Regular water applications will ensure even plant growth. Fruit development also depends on an even water supply so there is a need for a reasonably moist soil at all times.

Potential

Although globe artichokes are not new to New Zealand there is a need for promotion to make this crop more popular. It grows well in moderately warm and relatively frost-free areas in New Zealand.

Opportunities for fresh export are, as yet, undeveloped but process opportunities could well be investigated further. Further testing to identify a suitable cultivar for processing and fresh export is recommended, but would need to be undertaken in conjunction with specific market requirements.

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