



# RIBES GROWERS' GUIDE (2013)



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## Introduction

This is the sixteenth annual McGinnis Berry Crops guide to production of Ribes plant varieties. The purpose of the guide is to provide the necessary information about variety selection, planting requirements, and plant care that growers will need to make informed decisions. This guide will look at blackcurrants, red currants (including white and pink, which are of the same species as reds), and gooseberries.

While not all varieties are included in this guide, we cover those that seem to have the most potential for the North American market. Common varieties such as Pixwell, Oregon Champion, Colossal (gooseberries), Consort, Ben Nevis, Crandall, Ben Lomond, Ben Alder (black currants) have been surpassed by the introduction of varieties that combine higher yields, better disease resistance and superior fruit qualities. In future editions of this guide we will discuss new and relevant varieties as they are made available, as well as updated information on yields, pests, and information from the plant trials that will be taking place across North America.

If you have any questions regarding the information presented in this guide or areas that you would like to see addressed in upcoming editions please contact us at (250) 338-8200 or email [mcginnis@berrycrops.net](mailto:mcginnis@berrycrops.net). Also, you may visit our web site at [www.berrycrops.net](http://www.berrycrops.net).

## Blackcurrants

### VARIETIES

In the past “Ben Series” and Titania dominated new blackcurrant plantings worldwide. Starting with Ben Lomond these new cultivars were introduced to overcome the irregularity of cropping which is the major problem of blackcurrant production. They were selected to give high yields and crop consistently in spite of late frost and poor growing conditions during the flowering period.

In recent years, new releases from the McGinnis Berry Crops Limited breeding program have surpassed these varieties with double the yield, immunity to White Pine Blister Rust, tolerance of late frost, and exceptional flavor profiles.

The best and most important varieties are listed here. All of these blackcurrant varieties have demonstrated winter hardiness in extreme climates where winter minimums are – 45 degrees C. Some winterkill has been observed on Ben Alder where severe rust conditions have resulted in early defoliation and late season re-growth. Severe winter damage has occurred on Ben Alder and Titania in Alberta when cold and irregular temperatures were combined with drought conditions and sparse snow cover.

#### **Blackcomb** (*Ojebyn x Titania*)

**New release from McGinnis Berry Crops, our most popular black currant variety.**

**Blackcomb is a high yielding new variety that has high levels of resistance to foliar diseases – mildew, White Pine Blister Rust - , vigorous growth habit and tolerance to late spring frost. Blackcomb has produced yields in replicated B.C. trials that were more than 50% higher than Titania and Ben Alder. Fruit size is 20% larger than Titania. Flowering is late mid-season and this variety has demonstrated better tolerance to late spring frost than Titania. Well suited to machine harvest. Canadian Plant Breeder’s Rights pending.**



**Whistler [Ben Tirran x Bieloruskaja Slodkaja)**

**New black currant release from McGinnis Berry Crops.**

**Whistler has high yields of small to medium sized high quality fruit. It has fair resistance to mildew and good resistance to White Pine Blister Rust. Growth habit is slightly spreading with medium vigor. Flowering is late-mid season with good tolerance for late spring frost. Yields in replicated B.C. trials were more than 50% higher than Titania and Ben Alder. Fruit size is smaller than Ben Alder, .8 grams per berry. Juice quality is excellent. Well suited to machine harvest. Canadian Plant Breeders Rights pending.**



**Tahsis (Bieloruskaya sladkaya x Titania)**

New release from McGinnis Berry Crops Limited breeding program. Tahsis scored the highest yields among black currants in replicated trials in coastal British Columbia. Flowers late mid-season, tolerant of late frost, immune to White Pine Blister Rust, resistant to mildew, and has very large fruit (larger than Ben Sarek), Growth habit is spreading which makes it suitable for hand harvest or U-pick, displays fruit well, but not suitable for machine harvest. Annual pruning is a must.

**Titania (U.S. Plant Patent No. 11,439) (Altajskaja Desertraja x [Consort x Kajaanin Musta] – Tamas, 1980)**

Titania black currant is immune to White Pine Blister Rust and has very good resistance to mildew. Fruit size is large, similar to Ben Lomond, and fruit quality is good and flavour is quite mild. In some locations, yields are extremely high. However, Titania has been a real disappointment in many locations in North America. Growth habit has been a problem and the flowers are quite tender during frost events. The flowers are destroyed prior to opening.

Flowering and ripening seasons are very similar to Ben Lomond. The plant is very vigorous – reaching heights of 2 meters (6’). Titania is well suited to machine harvest. Susceptible to late spring frost.

**Tiben** (Titania x Ben Nevis) - Research Institute of Pomology, Poland, 1998

Very high yielding black currant variety characterized by even ripening, high levels of Anthocyanins and Vitamin C, upright growth habit and resistance to mildew. Reported to be moderately resistant to White Pine Blister Rust in Poland and shows very minor infection in coastal B.C. Ripens late mid-season (late July-early August in coastal British Columbia. Recommended for commercial trials in all northern regions.

Tiben has very long hang time which may present problems for machine harvest as the racemes fall off with the fruit. This produces a one-harvest fruit pack with very high brix levels – 21 to 23 brix.

**Tisel** (Titania x self) - Research Institute of Pomology, Poland, 1998

High yielding black currant, even ripening, very high levels of Vitamin C, very pleasant fresh flavour, resistant to mildew and immune to White Pine Blister Rust. Ripens slightly earlier than Titania two weeks earlier than Tiben. Not suited for most sites as the early flowering results in crop loss. Very northern climates with short growing seasons, however, are another matter. Highly recommended for trial in Alaska, Yukon and Newfoundland locations.

**Ben Lomond** ([Consort x Magnus] x [Brodtorp x Janslunda] – SCRI, 1972)

First of the “Ben Series” black currants to gain general commercial acceptance. The aims of the breeding program at SCRI are to produce varieties that tolerate adverse weather conditions at flowering time, crop heavily and consistently with growth habits suited to machine harvesting.

The main features of Ben Lomond are frost tolerance during flowering, even ripening, long hang time and very high Vitamin C content.

Originally resistant to mildew, Ben Lomond has lost much of its resistance as some mildew strains have mutated and is now highly susceptible. Requires long chilling time – 2,000 hours at 2 degrees C (36 degrees F).

Flowering is in early April in coastal BC and harvest begins about July 9.

Ben Lomond forms a compact bush, is rather spreading due to its Scandinavian ancestry and is of medium vigor reaching average height of 135 cm (4 ½’) in coastal BC.

Not recommended for most areas due to susceptibility to White Pine Blister Rust and mildew.

## **PLANTING**

### **Preparation**

Field preparation is critical to success with blackcurrant plantations.

Weed growth must be killed well in advance of planting. Begin preparation as early in the year as possible in order to allow weeds to re-grow to ensure that all perennial problem weeds are eliminated – e.g. thistle, quack grass.

Soils should be tested for nematodes. Fumigation may be recommended where populations of Longidorus, Xiphinema and other known virus vector nematodes are present.

### **Site requirements**

High fertility, fair drainage and irrigation are important factors to be considered prior to planting black currants.

Blackcurrants are heavy feeders. They should not be planted on marginal soils. High fertility is a major factor in maintaining plant health and yields. Blackcurrants tolerate a wide range of pH but 6.0 is optimal. Successful results have been observed at 5.0 pH where organic matter is high and at 7.8 pH in prairie soils. Trial plantings are a good idea where pH is at the extremes. Soil amendments are recommended to optimize pH.

Mid range soils are ideal for blackcurrants. Heavy clay or coarse sand may result in lower productivity. Loamy soils are ideal.

Plantations should be well drained for optimal results and irrigation is recommended. Blackcurrants will grow in wet soils and will tolerate drought relatively well. However, both conditions will compromise yields and plant health.

### **Spacing**

Spacing requirements depend upon the method of harvest and the black currant variety chosen.

For machine harvesting, 3.5m (10 1/2 ft.) between rows is necessary. Plants are spaced in the rows to create a hedgerow growth habit. Fifty centimeters (20") between plants is recommended for most varieties, 60-75 cm for Titania (24 - 30"). Many growers in Europe plant at 30 cm (1') to 45 cm (1 1/2'). Yield studies indicate that tight spacing has a proportional affect on yields in the first four years but that production levels even out later. The main consideration for in-the-row spacing is efficiency of harvest.

Hand picking methods dictate wider spacing. Ninety centimeters (3') is recommended for most varieties. Distance between the rows can be reduced to 2.4 – 2.7m (8 – 9') to allow for small and medium sized tractors to work between the rows. It is best to be conservative on row spacing. Rows that are too tight when plants are fully mature create severe crop management problems and may undermine the economics of a plantation.

## **PRUNING**

Immediately after planting black currants, if the plants have not been pruned before shipping, each branch should be pruned back to two buds showing above soil level. None of the branches should be left in place to bear fruit for they will compete with the new shoots for nutrients and water. Such competition will delay the development of the bushes.

Pruning is the single most important cost factor in growing blackcurrants. In depressed market conditions, the cost of pruning may render the plantation uneconomic. Consequently, new strategies have been employed to minimize the cost of pruning at the expense of some yield. Hand pruning techniques and mechanical methods are choices that will be influenced by the expected sale price of fruit and cropping strategies.

### **Hand pruning**

(Most of the information on hand pruning was provided courtesy of the late David Turner of England):

At the end of the first year, for every branch that was pruned back, two or three more should have grown 75 cm (30") in its place along with one or two weaker shoots. Pruning should consist of cutting out these weaker shoots and cutting back one strong shoot to its base. The purpose behind this method is to encourage the production of strong basal shoots in a bush to support heavy crop loads.

In subsequent year, all branches that are growing out from the base at an angle of less than 45 degrees should be cut off at the base. If they are left in place, the weight of the fruit they bear will bring them down to the ground where the fruit will rot or be damaged. Spreading branches also interfere with efficient machine harvesting.

Blackcurrants bear more and better quality fruit on the previous season's growth. When the bushes are fully-grown, they should be pruned every year to prevent the accumulation of too much old wood and encourage the production of strong new growth. With this objective, prune back three or four of the oldest branches to the base. In any event, all old unproductive wood should be removed to ground level. Wood becomes unproductive when new growth is short and weak.

## **Mechanical pruning**

Modern harvesting equipment may have attachments that allow growers to prune their fields mechanically. This generally entails shaping the bush for harvest efficiency but will also encourage some new growth.

Growing in popularity is periodic renovation of mature plantations. This method involves mowing down a portion of a field every fourth year or the entire field in four-year rotations. The appeal of this method is significant reduction in labour costs. Total labour per hectare (2.68 acres) has been reduced in Denmark to 14 hours (5 hours per acre) per year by employing this technique. By comparison, growers in England report labour inputs of 130 hours (48.5 hours per acre) per year. An obvious offsetting cost is the total loss of crop every fourth year.

The choice of methods will largely be determined by expected gross receipts and harvesting strategies. More research needs to be done to determine the impact of each method on long-term production.

## **FERTILIZER**

Soil tests or leaf samples should be taken annually to determine pH and soil nutrient levels. Indicate on your soil samples that your crop is blackcurrants and raspberries because your lab will not know what to recommend for blackcurrants. Fertilizer requirements for raspberries are close enough to those of blackcurrants to be useful. Blackcurrants seem to tolerate wide pH ranges (4.8 to 7.8) but 6.0 is optimal for high yields and plant health. High levels of organic matter buffer the effects of pH and may contribute to wider acceptable range. There are some indication is Europe that high levels of Calcium reduce plant health and yields.

Soil amendments and fertilizer should be added in March or early spring in late winter regions to compensate for deficiencies. Start with a formulation of 10-16-18 with slow release Nitrogen and minors at the rate of 250kg per acre if no other information is available. Blackcurrants respond well to applications of well-rotted manure in spring. Potash is particularly important during fruit development. Commercial fertilizers should be scattered or banded no closer than 20 cm to the crown to just outside the drip line.

In soils with moderate levels of organic matter, pH should be maintained in a slightly acid condition but above 5.5 with application of lime. Lime does more for the availability of plant nutrients than increases in fertilizer under low pH conditions. In alkaline soils, sawdust or other forms of organic matter should be tilled into the soil before planting. Decomposition will help to acidify the soil. In all soils, generous applications of organic mulch should be applied on the soil surface around the base of the plants to form a cover out to the drip line. Mulch helps control weeds, maintain cool soil temperatures and retain moisture.

## WEED CONTROL

Control of weeds around blackcurrants is critical to growth and development. Annual applications of sawdust or other organic mulches should help suppress weed competition. Blackcurrants have extensive shallow and deep root systems so weed control throughout the planted area is important. Cultivating around the base of the plants should be limited in order to avoid damage to the shallow, fine roots.

Black plastic mulch can be used if covered with organic mulch to avoid rapid breakdown from exposure to sunlight. However, plastic may interfere with manual applications of fertilizer and overhead irrigation. Unprotected by mulch, high temperatures may compromise young plants.

Where chemical herbicides are preferred, check with agriculture extension people to determine which herbicides are registered for currants and gooseberries. Casoron and Simazine are commonly used in Europe for long-term weed control. In both cases, residue buildup is likely to occur over time. There is also evidence that Casoron stunts desirable sucker growth in early spring. Gramoxone (paraquat) is registered in Canada but it is highly toxic and dangerous to the applicator. Use with extreme caution!

Landscape fabric (woven fabric) is another long term solution. The drawback is the high cost of installation. Weeds around the base of plants must be eliminated or the fabric will become nearly impossible to remove. Also, it is necessary to make the holes large enough to accommodate expanding crown of the black currant plant. Very good permeability and aeration.

## PESTS

There are four main pests of concern on blackcurrants – aphids, currant borer, currant fruit fly, and mites. Not all are problems in every region. BC Ministry of Agriculture and Food has prepared “Currants & Gooseberries Pest Management Guide for BC Commercial Growers” and is available at 1767 Angus Campbell Road, Abbotsford, BC, Canada V3G 2M3; phone 604-556-3001; fax 604-556-3030. Some of the comments below are taken directly from the text of the guide and are shown in quotes.

**PLEASE NOTE:** Registration of pest controls may vary from one area to another. Canada and the United States do not necessarily recognize the registrations made in other countries. **IT IS IMPORTANT THAT ALL GROWERS CONSULT WITH THEIR LOCAL EXTENTION AGENTS TO DETERMINE WHAT CHEMICALS ARE REGISTERED IN THEIR AREAS.**

No specific recommendations are made in this grower’s guide because such advice is beyond the scope of our technical capability.

## **Aphids**

The main problem with aphids is that they are vectors for transmitting virus diseases from infected domestic or wild Ribes plants. Otherwise, they are seldom a serious problem. If populations become large, terminal growth may be reduced and mechanically harvested fruit may be contaminated with the tiny insects.

## **Currant borer**

If currant borer is observed, chemical sprays may be required to control the pest. Symptoms include small yellow foliage in spring followed by die back of the canes. The most obvious sign of infestation is hollow canes with dark centers that may be observed during winter pruning.

“Prune out dead wood in the fall and in the spring cut out and burn infested wood.”

Field trials with mating disruption of the clearwing moth in black currants using pheromone stations show significant promise in Washington State and British Columbia. Pheromones are installed in the form of twist ties at the rate of 200 per acre.

## **Currant fruit fly**

“Adult flies lay eggs in the developing black currant fruit shortly after flowering. Small white maggots develop inside the fruit. Control is based upon spraying to protect the green fruit immediately following flowering.”

Field trials have been conducted to determine the efficacy of using GF120, Spinosad bait as a selective control for currant fruit fly. Minor use registration is in progress.

## **Mites**

Mites are of minor concern for black currants except to the extent that they may transmit virus diseases from infected plants. Titania, Tiben and Tisel appear to be quite susceptible to mite damage. Mites may be controlled using predatory mites - Phytoseiulus persimilis. However, the protection provided by natural predators may be lost by applications of chemicals (e.g. Guthion) that are toxic to them.

## **Anthracnose, leaf spot**

Anthracnose (*Drepanopeziza ribis*) and Septoria Leaf Spot are of minor concern for black currant production if the recommended varieties are planted. However, other varieties may be susceptible. “These fungal diseases can cause yield loss and reduce vigour of susceptible varieties in wet seasons. Small, dark brown, angular and round spots appear on the leaves. If abundant, leaves may yellow and drop mid-season. On currants, anthracnose may cause flyspeck fruit spots. Berries may crack open and drop.”

“Growing disease-resistant black currant varieties is the best way of avoiding these problems. However, where susceptible varieties have been planted, a combination of spraying and the following cultural practices will help control these diseases; prune, and control weeds and grass to improve air circulation; apply overhead irrigation in the mornings so the plants do not go into the night wet; and destroy diseased, fallen leaves or cover them with organic mulch to remove the over-wintering fungus.” The BC Pest Management Guide recommends cultivation to bury the leaves before bud-break.

If these diseases were evident during the previous season, apply preventative sprays as recommended.

### **Powdery mildew**

“Infection in black currants begins near bloom and may continue throughout the growing season. A white powdery growth appears on leaves, green shoots and fruit. Over time, this changes to a brown coating containing tiny black specks, making fruit unmarketable. This is the over-wintering stage of the fungus. Severely infected plants may be stunted and fruit may also crack and rot.”

“The best control is to plant resistant varieties. Good air circulation will lessen mildew problems. Warm, humid weather and heavy, late-season dews favour the development of mildew.”

### **White Pine Blister Rust**

“Small raised, yellowish orange spots develop on the underside of infected leaves. These become brownish and hair-like in late summer and fall. Severe defoliation may occur on susceptible plants. Susceptible varieties should not be planted within 300m (1,000’) and preferably 1 km (0.6 miles) from white (five-needled) pine.”

In areas where White Pine Blister Rust is a problem for forest management or where restrictions are in place against growing susceptible varieties, Blackcomb, Tahsis, Titania or Tisel should be planted.

### **Viruses**

There are several viral diseases that are concerns to growers of black currants. The most important is reversion. Many of these diseases including reversion are not found in North America. Reversion and its vector, gall mite, are the reason that imports of black currant plants into North America are prohibited.

Virus diseases known to be present in North America include gooseberry vein banding and tomato ring spot nepovirus.

Gooseberry vein banding infects blackcurrants, red currants and gooseberries. Symptoms appear when the first leaves to expand in spring show pale-yellow vein banding.

Tomato Ring spot causes symptoms consisting of varying degrees of chlorotic spotting and vein banding. Chlorosis may vary from a few spots or blotches, to a mild vein banding in a leaf, or to a chlorotic leaf with only a few green spots. The chlorotic areas may die and turn brown. On a single plant, the amount of chlorosis may vary from mild symptoms on a single leaf to conspicuous yellowing of the entire plant.

Follow a simple procedure for maintaining hygiene.

1. Where possible, obtain plants certified free of virus diseases.
2. Control nematodes that spread viruses.
3. Control aphids and mites.
4. Remove and burn infected plants

Reversion is the number one concern of blackcurrant growers in Europe. The disease causes serious reductions in yield and life of plantations. Its absence from North America is a major advantage for the industry here.

**CAUTION: DO NOT OBTAIN RIBES PLANTS FROM SOURCES OUTSIDE NORTH AMERICA EXCEPT AS PROVIDED UNDER THE QUARANTINE PROGRAM – USDA and Plant Protection Division of Agriculture Canada!** There is a prohibition on the importation of plants from most areas of the world. Importation of plants, cuttings or tissue culture material is against the law in both Canada and the United States. Quarantine is our only protection against the importation of reversion disease and its agent, gall mite.

### **WATER MANAGEMENT**

Black currants should be kept well supplied with water and not allowed to suffer from drought at any time during the late spring or summer period. Watering can increase berry size, double the weight of the fruit picked, and ensures that the new shoots grow satisfactorily. Drip irrigation is preferable because it avoids damp conditions that may promote fungal diseases, provides better control of soil moisture, minimizes consumption of water, and allows for fertigation of plants (periodic feeding through irrigation system).

Tensiometers or Irrimeters should be used to determine when irrigation should commence and for what duration.

## **Redcurrants**

(Includes Red, White and Pink currants – all genetically Redcurrants)

### **VARIETIES:**

#### **Red Varieties**

##### **Rovada** (Fay's Prolific x Heinemann's Rote Spatlese – Holland, 1990)

Very large fruit on extremely long strigs and heavy crops make Rovada an excellent choice for fresh market and U-pick. Very free of mildew and other leaf diseases. Late flowering (May) avoids frost. Harvest begins in mid-August. Begins cropping and reaches maturity quickly.

Commercial growers in British Columbia indicate that Rovada has the lowest harvest cost, less than ½ the other varieties.

##### **Hron** (Jonkheer van Tets x Heinemann's Rote Spatlese – Fruit Res. Breeding Inst., Bojnice, Slovakia, 1992)

Very attractive plant with clean, upright growth habit with strong branches. Leaves are dark green with pleasant general appearance. Yields are high with reported yields of 11-13kg/ acre. Well suited for machine harvest. Produces high juice content. Fruit is glossy red, firm, borne on long strigs, slightly acid and aromatic. Good resistance to leaf diseases. Well adapted to high altitude locations.

##### **Jonkheer van Tets** (seedling of Fay's Prolific – J. Maarse, Holland, 1941)

Very popular early season variety top rated for flavour. Very productive but best grown as cordon because of untidy growth habit.

Early flowering (late March – early April) makes Jonkheer van Tets susceptible to frost damage. Run off, the loss of immature fruit in spring due to botrytis is a problem in wet climates. Harvest season begins in mid to late June.

**Red Lake** (ancestry unknown – Minnesota Fruit Breeding Farm, 1920)

One of the most popular varieties grown in North America. Fruit size is very large and of good quality with high juice content. The fruit ripens in mid-season (July) and produces high yields of firm fruit.

Two problems limit Red Lake's appeal. First, it is quite susceptible to mildew, and second, it does not have much tolerance to late spring frost.

### White Varieties

**Blanka** (Heinemann's Rote Spatlese x Red Lake – Fruit Res. Breeding Inst., Bojnice, Slovakia, 1977)

Very heavy yields, good shelf life, very long clusters and some resistance to spring frost (flowers late April). Blanka is very vigorous with a somewhat spreading growth habit. The fruit is large, opaque, off-white. Attractive green and red foliage. Very reliable, easy to grow. Susceptible to mildew.

**Primus** (Heinemann's Rote Spatlese x Red Lake – Fruit Res. Breeding Inst., Slovakia, 1977)

The main advantage of Primus is its fresh fruit qualities. The berries are translucent, white with a yellow cast and good flavour. The growth habit is upright and vigorous. Yields are high but not as spectacular as Blanka. Frost may be a problem as flowering takes place earlier than Blanka and berries, strigs and plant height are smaller. Very attractive plant. Leaves have an appealing red cast and new shoots are fully red. Susceptible to mildew.

### **PLANTING**

Preparation and site selection are very similar to black currants. However, drainage is a more important consideration. Redcurrants do not perform well on heavy soils.

Remove any white buds below soil level prior to planting to discourage sucker growth.

### Spacing

Spacing depends upon the growing system that is being employed. Redcurrants may be grown in bush form or by training them on wires as cordons. (See pruning).

In bush form, plant 120 cm (4') between plants and 240 cm (8') between rows. One hundred eighty centimeter row centres (6') and tighter spacing in the rows is possible by

using cordons. Triple cordons require 120 cm (4') spacing, doubles 90 cm (3') and singles 45 cm (1 ½').

Posts for supporting wires should be no more than 9 m (30') apart on level ground and closer on irregular terrain. Wires (10 gauge) should be parallel to the ground at 75 cm (2 ½') intervals.

## **PRUNING**

Redcurrants produce fruit on three-year-old wood. Rovada crops on younger wood. The object of pruning is to establish framework and fruiting spurs.

### **Bush form**

One main vertical shoot should be saved from first year growth. Cut back to 25 – 30 cm (10 – 12") 1/2 of length whichever is longer. Second year, select three or four strong lateral shoots near the top of the main shoot that are on opposing sides of the main shoot. Cut back to 1/2 their length to an outside bud facing away from the centre. Remove all other laterals by cutting back to one or two buds. Third year, select two or three leaders from each of the laterals that are facing out from the centre but at different angles to form the framework. Cut back all other growth to one or two buds. Maintain growth habit by cutting back leaders to 1/2 their length and all other laterals to one bud. Remove any lateral growth or suckers below the top of the leg. Cut out old or diseased wood.

### **Cordons**

Single, double or triple cordons can be used for tighter spacing and easier picking. Cut back first year growth to form a leg. Second year, cut back single cordon by 1/2 the length of new growth. Double cordons require that two strong shoots be tied down during the second season to horizontal position. Triple cordons have two horizontal shoots and one central vertical shoot. Winter prune the horizontal shoots to an upright bud and the central shoots to 1/2 their growth. Cut any side shoots back to one bud and remove any low growth or suckers. Third year, cut back vertical cordons by 1/2 of growth and side shoots to one bud. Be sure to leave 30 cm (12 in) between the outer cordons and the plant next to it.

Many other variations can be developed from the basic cordon theme.

## **PESTS**

### **Aphids**

Aphids are more of a problem on redcurrant than on blacks. Symptoms are reddish blisters that are clearly visible from a distance on the tops of the leaves. Aphid colonies can be seen by examining the underside of infected leaves.

### **Sawfly**

Sawfly larvae are the most common pests complained about by novice growers. They are easy to control but require springtime vigilance. Minute larvae appear on the underside of leaves in May. They are very difficult to see in the early stages because of their small size and green colour that matches the leaves. The best evidence of infestation is tiny pinholes that can be seen from the upper leaf surface. If left untreated the larvae will grow in size and completely defoliate the plant. One to three cycles of this pest may appear with May and June being the most common time of infestation. In some years small pockets of a field may experience infestation later in the summer.

In addition to the recommendations in the BC Pest Management Guide, insecticide soap may work in the early stages of larval development if they are hit directly with the spray but for large plantations this is not practical.

## **FERTILIZER, WATER MANAGEMENT AND WEED CONTROL**

Follow procedures outlined for black currants

### **Gooseberries**

#### **VARIETIES:**

**Tixia™** (variety - Rafzvetica) Canadian Plant Breeders' Rights pending (Invicta x LS 9-31-54 - Peter Hauenstein, Rafz, Switzerland, 1990)

Beautiful, large (similar to Invicta), bright red fruit; elongated and quite smooth. In addition to the attractive fruit, the main feature of Tixia is that one year shoots have few thorns and the thorns are relatively soft; usually as a single thorn with very few, if any, on the upper portion of new growth..

Growth is medium to strong, upright. Ripens mid-season with Whinham's Industry. Well suited to home garden, U-pick and commercial plantations.

**XENIA™** (Variety - Rafzuera) Canadian Plant Breeders' Rights Pending (Invicta x LS 9-31-54 - Peter Hauenstein, Rafz, Switzerland, 1990).

Beautiful, large (40% larger than Invicta), dark red fruit; oval shape and quite smooth. In addition to the attractive fruit, the main feature of Xenia is that the upper part of new shoots have few thorns and the thorns are relatively weak; usually as single thorns.

Growth is medium to strong, upright. Ripens early to middle season, between Mayduke and Whinham's Industry.

Well suited for home garden, U-pick and commercial plantations.

### **Hinnomaki Red** (Finland)

Outstanding flavour. Outer skin is tangy while the flesh is sweet. Very productive with dark red medium sized fruit (3.6g) on upright plants. Favourite with home gardeners. Very adaptable to various growing systems. Would make good edible hedge or space barrier. Could be adapted to machine harvest. Good mildew resistance. Begins fruiting in the planting year – a real nice feature for home gardeners.

### **Invicta** ([Resistentia x Whinham's Industry] x Keepsake – Hort. Research International, U.K., 1983)

Selected as part of the programme at East Malling to incorporate disease resistance into commercially attractive varieties.

Invicta produces a vigorous, rather spreading bush. Spines are large and numerous. The pale green fruit is very acceptable for fresh market outlets. It is suitable for processing, giving a product of high quality, even colour and good flavour.

Yields are very heavy. Trials in Holland recorded nearly twice the yield of the next highest variety. Fruit size is large – 8g. Resistance to mildew is very good. Requires good drainage.

## **PLANTING**

See Redcurrants

## **PRUNING**

Same as red currants except for summer pruning. Higher yields and better quality fruit are obtained in subsequent years when new side shoots are cut back to 4 or 5 leaves from the base in late June.

All other cultural care is much the same as red currants.