

Kentucky Fruit Facts

August/September 2003 (8/9 2003)

Fruit Facts can be found on the web at: <http://www.ca.uky.edu/fruitfacts/>

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Fruit Crop News

John Strang, Extension Horticulturist

Apple harvest is proceeding and several growers have indicated that varieties are maturing a week or so earlier than normal. Peach harvest is about over. Fruit color and size on apples and peaches are better than they have been in years.

We harvested our first Chesapeake thorny blackberries at the Horticultural Research Farm this season. Wow! These are the largest blackberries that I have seen. The berries were firm and the flavor was very good with a hint of blueberries as described in the variety description. Seed size was not as large as that of the thornless berries.

Thornless semi-erect blackberry harvest is over. In general the blackberry harvest has been excellent and much better than anticipated. Several growers in central and eastern Kentucky experienced low winter temperatures in the -14 °C range and I did not



expect plants exposed to these temperatures to fruit this year. Thornless blackberries are only supposed to be hardy to -9 or 10 °F. The only way that I can explain this is that the temperature must have just made a quick spike down at sunrise and quickly gone back up. Live and learn! Green June bugs, Japanese beetles, and stink bug and thrip feeding on berry drupelets, birds and wild turkeys were occasional to frequent grower concerns this season.

Winegrape growers that are harvesting fruit this season should keep in mind that most winemakers want white grapes that are harvested at a pH of between 3.1 and 3.4 and red grapes harvested at between 3.3 and 3.5. They usually do not want the pH to get above 3.4 for white grapes and 3.5 for red grapes, because this leads to wine shelf life problems. They would also like the highest sugar levels possible. It is much easier to calculate the amount of sugar to add as opposed to the amount of tartaric acid, consequently the grape pH at harvest is very critical.

On July 11 the Agriculture Development Board approved a \$785,125 grant for the Kentucky Grape and Wine Council. This grant will fund the hiring of a state viticulturist, enologist/winemaker and one technical support

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position for a two year period. The grant also includes \$200,000 for grape research and operating funds for the KGWC.

The Agriculture Development Board also approved a \$2,480,601 grant for the Kentucky Horticulture Council on August 15. UK Horticulture will receive \$2.1M of this. This funding will continue the six current Extension Associate positions for two more years and provide the operating funds and the staff that have been hired on the Kentucky Horticulture Council money for two more years. It will allow the hiring and funding of three more Extension Associates. Two will be housed in Lexington; working in nursery/greenhouse areas. One will work with the fresh produce industry in southeastern KY.

Upcoming Meetings

Sept. 16-18 SIERA-IEG Meeting and Tour of Tennessee Vineyards and Wineries, Wingate Inn, Clarksville, TN. See tour details below.

Oct. 25 Kentucky Nut Growers Association Fall Meeting, Scott County Extension Office, Georgetown, KY. 9:30 a.m.-3:00 p.m. Contact Hugh Ligon 270/827-9044.

Nov. 1 Kentucky Vineyard Society Fall Meeting, Lovers Leap Vineyards and Winery, Ann and Jerry Holder owners, 129 Lovers Leap, Lawrenceburg, KY. Contact John Pitcock 502/859-0101.

Nov. 15 New Crops Opportunity Conference, Sheraton Suites Hotel, Lexington. 9:00 a.m.- 5:00 p.m. Contact Christy Cassady 859/257-2859.

Jan. 5-6, 2004 Kentucky Annual Fruit and Vegetable Conference and Trade Show, Holiday Inn North, Lexington, KY. Contact John Strang 859/257-5685.

Eddie Kaenzig

Edna Duncan "Eddie" Kaenzig, wife of Claude Kanezig of Kaenzig Brothers Orchard in Versailles, died Wednesday July 23, 2003. Eddie was born in Fayette County on Oct. 7, 1925 and was a graduate of Lafayette High School. She loved life and was a joy to be around. Her cheerful voice and ready smile will be sorely missed. Eddie is buried at Bluegrass Memorial Gardens in Lexington.

SERA-IEG 14 Meeting

Sept. 16 - 18, 2003 --- Clarksville, TN

Grapes and Wines Are Alive and Well in the South!

Tennessee currently has 29 licensed wineries and produces in excess of 150,000 gallons of wine annually. We are proud to have this opportunity to show off a bit of **Tennessee Wine Country**. The SERA-IEG 14 meeting has received the blessings of the directors and many people have already indicated their intent to attend so don't delay. **This meeting/ tour has been made available to Kentucky growers and is an excellent opportunity to obtain an inside view of the Tennessee wine industry as well as to meet and converse with some of the best grape and wine experts in the Southeast. Call Dave Lockwood to learn additional details.**

Meeting Agenda

Tuesday, September 16 - Reception at 6:00 pm

Join us at the Wingate Inn to sample Tennessee wines and meet some of the people responsible for the success of the industry - our growers and winemakers. Light hors d'oeuvres will be served. Dinner following the reception will be on your own.

Wednesday, September 17 - Tour

We will explore three unique operations in the Middle Tennessee area: Hall's Fruit Farm, the Red Barn Winery and Vineyard and Beachaven Vineyards and Winery. We will have several vans for the tour.

The first stop will be at Hall's Fruit Farm in Portland, TN. Wilburn Hall has one of Tennessee's oldest and finest vineyards. He produces American and French-American hybrids for wine (along with a few blackberries). Wilburn is also experimenting with growing fresh water shrimp.

From Portland, we will travel to Lafayette, TN, home of the Red Barn Winery and Vineyard. Owners Glen and Judy Clement have converted a tobacco barn to a winery that sets in the middle of their vineyard. The winery and vineyard have become a popular place for weddings and meetings of all types due to the

uniqueness and beauty of the area plus the cordiality of the Clements. This is truly a fine example of an "alternative agricultural enterprise" and a "value-added" enterprise as the Clements has moved away from traditional agricultural in that area. We will tour the winery and vineyard, have lunch and a short business meeting at the Red Barn.

The tour will conclude at Beachaven Vineyards and Winery in Clarksville, TN. Beachaven is one of Tennessee's oldest and most successful wineries. Beachaven is considered "one of the places to be" in Middle Tennessee for their Jazz-On-the-Lawn series, presented on Saturday nights throughout the summer months Owners Ed and Louisa Cooke will give us a tour of the winery followed by dinner on the premises

Thursday, September 18 - Business and Reports.

State reports and committee reports will be presented and unfinished business will be addressed. The meeting will adjourn by noon to give you plenty of time to make flight connections in Nashville or to at least let you get through the Nashville area well in advance of the evening rush hour, if you should need to go that way.

Travel Information: (Note that the Nashville/Clarksville area is in the Central Time Zone)

The Nashville International Airport is the closest major airport to Clarksville. It is serviced by most of the major airlines.

Clarksville is located about 45 miles north of Nashville on Interstate 24. Take exit 4 off I-24, turn left at the base of the exit ramp (if coming from the Nashville area) onto Wilma Rudolph Street, take the first left past the interstate onto Holiday Street and proceed to the Wingate Inn which will be on your left. (If you are driving up I-24 from Nashville, you will be able to see the Wingate Inn on your left shortly before you get to exit 4.)

Headquarters:

Wingate Inn, Clarksville, TN
251 Holiday Dr., Clarksville, TN 37040
Telephone: 931-906-0606

Special Meeting Rate: \$55 + tax for king or double, **(be sure to tell them that you are with the "Wine Tasting Tour")** cancellations must be made one week prior to arrival

Registration: \$125

(Includes reception, tour, lunch & dinner the 18th)

Make checks payable to The University of Tennessee and send them to Bill Morris

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Henry Converse

Henry Thomas Converse, Jr. passed away on August 17 at Lourdes hospital in Paducah at the age of 87. Henry was a native of Spartanburg, SC. He worked as a Soil Scientist for 35 years for the USDA Soil Conservation Service. Henry was past President of the National Retired Federal Employees Association in Paducah. He was also the first President of the Kentucky Nut Growers Association when it was started in the early 60's. His dedication to the KNGA was evidenced by the fact that he was Secretary Treasurer from shortly after the organization was started until only recently.

Henry had an avid interest in fruit and nut production and promoted nut production throughout his life. He was particularly interested in pecans and hicans. As he worked across the state for the Soil Conservation Service he searched wooded areas for native nut trees that had potential. He watched and kept track of many of these trees over the years and helped propagate the best.

He is survived by his wife of 59 years, Betty Lee Converse. Henry was laid to rest at Roselawn Cemetery in Bardwell, KY. Henry will be missed by many of us.

Peach Fruit Diseases

By John Hartman, U.K. Extension Plant Pathologist

Peach Scab

Peach scab is a common problem in Kentucky orchards especially where an early protective fungicide agenda was not strictly maintained. The scab fungus, *Cladosporium carpophilum*, causes primarily an unsightly spotting of the fruit skin. Consumers who purchase fruit with only a few lesions should not notice much difference in the taste or nutritional value of the fruit. However, consumers who preserve the fruits often dip them in hot water so that the skins slip off the fruit easily. Skins of scab-infected fruits do not slip off easily. Peach preservers try to select scab-free fruits for canning.



Symptoms. Scab first appears as small, round, green to black spots on the fruit about six or seven weeks after petal fall. Fruit lesions first appear as small, greenish, circular spots which later become black and velvety, primarily on the stem end of half-grown to mature fruit. When the disease is severe, the lesions often run together which results in fruit cracking or abnormal fruit development. The time from infection to appearance of visible symptoms may take about a month, so peaches infected rainy periods at shuck-split may not show symptoms until just before harvest. At the time growers begin to notice symptoms, it is much too late to attempt disease prevention. Although the most conspicuous symptoms of peach scab

occur on the fruit, the disease can also occur on twigs and leaves. Shoot and twig infections are circular to oval, brown in the center with slightly raised purple margins. The fungus overwinters in twig lesions and becomes active during shuck split (just after petal fall) and the following weeks.

Disease management.

- Prune trees to increase air circulation which facilitates drying of fruit and foliage and increases spray penetration into the trees.
- Diligently apply protectant fungicides. Peach scab outbreaks can usually be traced to a failure to apply a fungicide in the early season spray program due to rainy weather or sprayer malfunction. Peach scab can be controlled using fungicides such as Captan, Sulfur, Benlate, Bravo, Topsin M, Thiram, and Ziram applied according to label directions. Spray applications begun at shuck-split and again at shuck off are critically important (to cover the newly exposed fruit surface). Sprays just before harvest to protect against scab are unnecessary.

Peach Bacterial Spot

This disease, caused by *Xanthomonas campestris* pv *pruni* may appear on some cultivars in years with stormy, rainy weather.

Symptoms. Leaf lesions are brown to black and generally angular in outline. Often the centers of spots fall out, and margins have a reddish coloration; severely infected leaves turn yellow and drop. Infected fruit develop brown to black lesions. Lesions may coalesce and the fruit becomes pitted and cracked.



Disease management.

Bacterial spot is difficult to control.

- Avoid growing highly susceptible varieties.
- The antibiotic, oxytetracycline (Myco-Shield Agricultural Terramycin 17 percent SP), can provide good control when used as the label directs. If the disease has been a problem for growers in the past, they should plan to begin sprays at shuck-split and continue at 7-day intervals until 3 weeks before harvest.

Peach Brown Rot

Brown rot disease, caused by the fungus *Monilinia fructicola*, reduces yields primarily by decaying fruits on the tree and after harvest. All stone fruits are highly susceptible to brown rot.

Symptoms. Brown rot disease causes a soft, brown decay of stone fruits. Warm, wet, humid summer weather conditions favor infections by the fungus. Decay begins as a small circular brown spot which rapidly expands to destroy the entire fruit. Under moist conditions, the fungus produces tufts of mycelium and spores on the surface of the fruit. As fruit softens during the ripening process, it becomes more susceptible to brown rot. Rotted fruits may fall or remain on the tree as mummies. The brown rot fungus also causes blossom blight and twig blight in the spring.



Disease management.

- Use sanitation to reduce sources of inoculum. Mummies and small fruit left over from earlier thinning operations and simply lying on the ground can be sources of inoculum. Blighted twigs should also be removed after the final harvest.
- Avoid fruit injury. Insect damage to the fruits can open up wounds that allow entry by the brown rot fungus. Take care to avoid fruit injuries during harvest.

- Improve orchard drying conditions. Densely planted orchards or those partially shaded or surrounded by a woods could have problems with reduced air movement and slow drying, leading to greater brown rot outbreaks.
- Apply fungicides to prevent brown rot. Effective brown rot fungicides such as Elite (tebuconazole), Indar (fenbuconazole), or Orbit (propiconazole), often referred to as DMI fungicides, can be alternated with Topsin-M (thiophanate-methyl) or Rovral to manage DMI fungicide resistance. Wettable sulfur is fairly effective for brown rot management if applied at frequent intervals and if disease pressure is not too high.

For fungicide suggestions and timing, consult the U.K. Cooperative Extension bulletin ID-92, *Kentucky Commercial Tree Fruit Spray Guide* 2003, available at County Extension Offices.

Harvesting and Handling Apples

by John Strang

Use several maturity tests to determine when to harvest, because every year is different and no one test works best all the time. In addition the intended handling and marketing plan affects the harvest time. If the crop is small and the apples are being sold fresh market, it is better to let the apples develop their full flavor on the tree. However, if the apples are to be stored as long as possible to extend the marketing season, these should be picked on the immature side to maximize storage life.

Harvest indices include:

- Days after full bloom - This can be used to determine the approximate time when the apples should be harvested.
- Skin and flesh color - As apples mature the over-color becomes more intense and the under color turns from white or greenish to a cream or yellowish color. This is a fairly poor indicator of the readiness of fruit for harvest or storage.
- Fruit firmness - Follow fruit firmness measurements for several weeks before the

expected harvest date. Fruit firmness should decrease slowly from 20 pounds to 15 or 16 pounds. Harvest should take place before 14 pounds pressure is reached, depending on variety. Apples will be too soft and mostly unmarketable at 10 pounds. Fruit pressure is measured by taking a small slice of skin from the apple surface on both the blush and green side of the apple and then smoothly forcing the 7/16" probe on a fruit pressure tester into the fruit to the marked depth.

- Soluble solids or percent sugar -

Harvest should begin when an acceptable sugar content is reached. An apple at 10% soluble solids is still fairly starchy and lacks sweetness. Some varieties such as Gala and Fuji should be allowed to reach 13 to 14% soluble solids before being marketed. Most apples taste very good when they reach 13 to 14% soluble solids. A refractometer is used to measure soluble solids.

- Disappearance of starch from the fruit -

This is an excellent technique for assessing maturity. Several fruit are cut in half across their equator and the cut surfaces are sprayed with an iodine solution. This will stain the starch in the fruit a blue-black color. A rating scale of 1 to 6 is used to determine the readiness of fruit for harvest for the intended use. A reading of one is an apple that is completely starchy and immature, while a reading of 6 is an apple that is starch free. There is some variation between varieties as to how the starch clears and this test does not work well on Honeycrisp. This scale can be found in our Kentucky Apple Crop Management Scout Manual.

- Red Halo Test - Dr. David Dilley from Michigan State University is in the process of developing a new grower friendly maturity index that identifies when an apple is at its peak of ripeness. It is based on the fact that when apples are wounded they produce ethylene gas and develop a red halo around the wound after one to two days before they are mature. At the point of peak maturity they do not develop the red halo. The test involves bagging red apples in the spring so that red skin pigments do not develop, making the halo developed from wounding visible. This test will allow growers to maximize fruit size, reduce fruit scald and assure that the apples will ripen to their peak of flavor. At this point this test is still under development.

It is useless to grow high quality fruit if the quality is lost through poor handling practices. Harvest crews should be carefully trained and supervised to reduce bruising and during picking and hauling. Golden Delicious, Honeycrisp, and McIntosh types are particularly prone to finger bruising, which shows up the following day. Some growers will have pickers wear cotton gloves to reduce this injury. Fruit should be gently transferred from the picking bag to the crate or bin. Pickers should not rest the bag on the edge of the bin before emptying the bag, because the edge of the bin will leave a row of bruises on the bottom most apples.

Smooth out bumps in orchard roads. Each bump means more bruising. Drivers that transport fruit should be cautioned to avoid excess speed and carelessness. Those that reposition boxes or fork lift crates should be informed that a 6 inch drop will bruise many fruit.

Get fruit out of the sun after harvest and cool the fruit as soon as possible. Apples store better if they are cooled to the desired temperature in less than four days. Storage life is shortened by 7 days for each day delay in cooling the fruit. If the fruit are left out overnight and placed in storage in early morning it will reduce the cooling load, however this can also introduce mice into the storage. So keep a few mouse traps handy.

Sell the first fruit harvested as it comes off the tree. Then fill the storage from front to back and then remove it from front to back. By doing this the least mature fruit, which has the best storage life will be stored the longest.

A storage temperature of 32 °F is recommended for most varieties for maximum storage life. However, some varieties such as McIntosh do better at 36 °F. Honeycrisp is a difficult apple to handle, because the starch maturity test does not work on this variety and soft scald and bitter pit are a problem in storage. The latest recommendation from Dr. Cindy Tong at the University of Minnesota is to store Honeycrisp at 40 °F for 1-2 weeks and then drop the temperature to 32-34 °F. This should also reduce the development of soft scald and bitter pit.

Growers that do not have a large crop and do not need to store apples for a long period will find that a higher storage

temperature works just as well and saves refrigeration costs. Maintain a relative humidity of around 95% to reduce fruit moisture loss. Wet the boxes and fruit down when they are placed in storage and then periodically to provide a high humidity.

Jerry's Grape Update

by Jerry Brown, Fruit Extension Specialist,
Emeritus and Vineyard Consultant

A new wine grape, 'Abundance' has been released under patent by Cornell University. Most of the information below was taken from a June article by Linda McCandless in the American Society of Horticulture Science newsletter, which is a publication for professional horticulturists. 'Abundance' is vigorous, productive, and winter hardy in the Finger Lake area. Growers there pushed to name and release this grape, because it is such a reliable producer, and it makes a very enjoyable wine. It was formerly tested as GR 7 and NY 34791. It took many years for growers and researchers to discover that it remains productive in older vineyards, while other red wine varieties succumbed to disease. It for the present time is only available to commercial nurseries from Cornell. Sometimes nurseries can obtain limited supplies for testing, so, it could be available in limited supplies next year.

I thought that "Turning Sunlight into Wine" by Smart and Robinson was greatly overpriced at \$50 - \$60 for less than 100 pages. After all I got to follow Nelson Shaulis, the king of eastern grape management and photosynthesis around for 10 days years ago. Since that time, I kept up with the research implications. However, after retiring from the University, I was short on visuals to share. After I saw some of the training system figures from the book I knew that I had to try it. It has turned out to be a very good investment. What I like about the book is one, the author obtained an advanced degree under Nelson Shaulis's direction. Two, he dedicated the book to Nelson, who wrote the forward. Three, it is in grower friendly language. Four, it is the best text I have seen on canopy management and he gives the research basis, the country and region

of origin, and grower experience with each suggested practice. Questions, contact me at 270/388-0818.

New Sinbar Herbicide Uses on Strawberries

by John Strang, Extension Horticulturist

The label for sinbar use on matted row system strawberries has been expanded. Sinbar may now be used on newly planted or first-year strawberries. Apply 2-3 ounces per acre in the spring after transplanting and before daughter plants begin to root. Additionally it may now also be use at a rate of 2 to 6 ounces per acre late in the summer and early fall.

It is critical in both of these cases that the sinbar application needs to be followed by 0.5 to one inch of rainfall or irrigation to wash the sinbar off of the leaves to avoid plant injury. Do not apply more than a maximum of 8 ounces of sinbar per season.

Disease Can Limit Blackberry Production

by John Hartman

Blackberries are native to Kentucky and readily grow in the wild statewide. Because they grow wild, there is a tendency to regard them as an easy crop to grow and to not be aware of their potential disease problems. Recent laboratory and field observations of devastating blackberry diseases in Kentucky are a reminder that growers need to be aware of the several blackberry diseases that could require attention if they are grown commercially.

Anthracnose and Cane cankers. Fungi such as *Elsinoe veneta*, *Leptosphaeria coniothyrium*, and *Botryosphaeria dothidea* can attack the cane, often made more susceptible by injury the previous winter, or by spring frost or drought. These fungi cause lesions and cankers that can girdle the canes and cause them to die. Infected canes commonly become cracked and brittle and break easily. Many of the upright

Arkansas selections are not very cold hardy and may be more susceptible to cane canker diseases.

Orange rust. This disease, caused by the fungus *Arthuriomyces peckianus*, is the most important of several rust diseases of blackberry. Infected plants can be easily identified shortly after growth appears in spring when newly formed shoots appear weak and spindly. The new leaves on such canes are stunted or misshapen and pale green to yellowish. In a few weeks, the lower surface of infected leaves are covered with waxy, bright orange blister-like pustules. Blackberries are infected systemically and will bear little or no fruit. Orange rust is widespread on Kentucky wild blackberries.

Rosette (double blossom). This devastating disease is caused by the fungus *Cercospora rubi*. Symptoms usually consist of weakly growing, but proliferating leafy sprouts called witches brooms. Flower buds are abnormally enlarged and flowers may be deformed. Rosette-infected blossoms do not form berries and other parts of the cane may produce poor quality fruit.

Phytophthora root rot. This disease is caused by one or more species the fungus *Phytophthora* which lives in the soil and causes a decay of blackberry roots and lower stems. The leaves of the plant may wilt, canes may be stunted, and plants may die. Once plants become infected, they may die quickly or they may decline gradually; they rarely recover from this disease. The fungus is a "water mold," and is thus favored by wet soils.

Verticillium wilt. The soilborne fungus, *Verticillium albo-atrum* causes this serious wilt of blackberries. Depending on variety, blackberries may suffer severe losses or merely poor growth. Symptoms appear in mid-summer as lower leaves begin to turn yellow and wilt.

Blackberry virus diseases. Little is known of the kinds of viruses that might affect blackberries in Kentucky. Some blackberry viruses can reduce yields by causing sterility or production of seedy, crumbly fruit while others may simply weaken the plants so that they are more susceptible to other diseases.

Disease management.

Growers should assume that careful attention to disease management will be needed.

Select varieties that are well adapted to Kentucky to avoid cold injury and cankers.

When starting a new planting, purchase only high-quality disease-free virus-indexed stock. Be aware that some viruses can be transported from nearby wild blackberries.

Do not plant blackberries where tomatoes, eggplant, strawberries, or nursery stock such as maple trees have been grown to minimize chances of *Verticillium* wilt. Also, avoid weedy fields with black nightshade, horse nettle, pigweed, and lambs quarters which also support *Verticillium*.

Choose a well-drained site and grow blackberries on raised beds to reduce *Phytophthora* root rot. Although fungicides such as Ridomil can suppress the fungus, growing blackberries on raised beds is more effective and less expensive.

Plant blackberries isolated from other brambles (the farther the better) and remove and destroy wild brambles such as black raspberries and blackberries growing nearby to reduce possible infections by the range rust fungus and by blackberry viruses. For prevention of virus disease transmission, 500 feet is considered a minimum distance.

Control weeds in the planting and thin out the foliage if necessary to improve sunlight penetration and ventilation to reduce canker diseases. Try to prune when the canes are dry and will remain dry for a few days. Dispose of pruned canes.

In early spring, remove rust-infected plants from the blackberry planting and similar plants from wild areas nearby.

Use fungicides such as Nova or Cabrio to prevent rust; applications need to be made repeatedly in spring and again in late summer.

Be alert for rosette, or double blossom disease and begin preventive spray programs the next year. In some areas blackberry growers will routinely spray 4-5 times each summer with the fungicide Benlate (a now difficult-to-find fungicide due to phase-out by the manufacturer) to manage rosette disease

Use lime-sulfur as a preventive spray each spring to guard against canker diseases -

especially on varieties that may be less winter-hardy.

Maintain good plant vigor but avoid excessive fertilization; water blackberries during dry periods.

Inspect plantings frequently and remove and destroy diseased plants promptly.

In most parts of Kentucky, only one or two of these diseases are a cause for concern and these diseases can be managed with diligent effort. However, in some Kentucky locations three or four of these diseases are chronically present making successful blackberry growing in these locales very

difficult. Growers are often reluctant to use fungicides on blackberries because sprays add expense to a crop that one might think would not need many sprays. Growers need to assess their growing circumstances when committing to blackberry culture.

Disease management advice can be found in U.K. Cooperative Extension Publication ID-94, Midwest Commercial Small Fruit and Grape Spray Guide 2003 and the Midwest Small Fruit Pest Management Handbook available at Kentucky County Extension Offices.

John G. Strang,
Extension Fruit & Vegetable Specialist