HARVESTING SMALL FRUIT . . . POINTS TO PONDER

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This is the first in a series of three small fruit articles on harvesting, postharvest handling/storage, and marketing of small fruit. Whether you wholesale, retail, or U-pick, it is important to do your homework before berry harvest. Although harvest here in New York is still some months away, its not too soon to begin getting ready. A little time now can save a lot of headaches and profit losses later. Below are some points to ponder in putting together your harvest game plan.goes here.

I. Harvest Labor

Small fruits, in general, are highly perishable and have shorter shelf lives than other fruits. Untimely delays in small fruit harvest may result in overripe fruit in storage or complete crop loss! Be sure to secure sufficient harvest labor well in advance of the harvest period: pickers, field supervisors, cashiers, truck drivers, tractor drivers, parking lot attendents, farmer's marker workers etc. You might also want to consider hiring one or more "floaters" whose job would be to fill in for absent employees or provide additional assistance during peak harvest periods.

Don't shortchange yourself during the hiring process! Ask for a written application from each potential employee which includes things like contact information, education and background, and work experience, emergency contact etc. Be sure to ask for 3-5 references. Spending a few minutes checking references before interviewing and hiring is one of the keys to getting good workers! Keep a file for each employee with this information. Add any other employment records to this file over the course of the season. In a larger operation this helps in deciding who gets a return job offer for next year.

The second key to having good workers is communication. Clearly communicate to your employees what it is you are asking them to do. Provide each worker or each type of worker with a specific job descrition *prior* to the interview process. This job description might be a simple as a list of duties and responsibilities, and expected work ethics (i.e. punctuality, attendance, dress code, politeness to customers, use of cell phone during work hours, etc.) Be sure to include information on lunch periods and breaks, length and terms of employment, compensation information, and other worker expectations. After the interview process or at hiring, ask workers to sign a copy of the job description indicating they have received it and understand what the job will require. Provide tours and training as needed to help workers be successful in getting the job done. Set reasonable and documentable job expectations.

After workers are hired and on the job, give regular feedback on whether or not they are meeting expectations. Consider rewarding those who consistently meet or exceed expectations in some way – ex. half day off with pay, gift certificate to a local restaurant, end of season bonus, $20 free produce from stand, etc. Provide specific feedback to those not meeting expectations. Start by giving them another copy of their job description and explain which expectations are not being met, and why. . Then explain what steps they need to take to reach those expectations. *Do this when its needed, each time its needed, as soon the need arises!*

Encourage workers to share concerns or suggestions on how their job might be done more efficiently. Get everyone on the same page! Think about having short worker meetings at the beginning of each day or week to discuss the goals for that time period and what each person's part in meeting those goals will be. Its easier during peak work times for everyone to function together as a unit if each understands the role they play, and the role of others.

The third key to having good workers is creating an environment of worker safety and engaging workers to be a part of it. Instruct all workers in good agricultural practices such as hand washing each time before and after harvesting fruit or after using restroom facilites. Provide handwashing stations, adequate restroom facilities, and potable water on site.

Explain any farm- or equipment-related safety procedures. Provide additional safety training as needed. Pinpoint locations of pesticide central posting boards, first aid kits, fire extinguishers, and emergency phone access for all locations. Post signage indicating steps to be taken in case of an emergency.

II. Equipment and Supplies

Nothing can be more frustrating than to have equipment failures or problems on the 1st or 21st day of harvest. Minimize these problems by checking and servicing all needed equipment prior to use; tractors, wagons, ATV's, golf carts, scales, coolers, refrigeration units etc. Maintain equipment on a regular basis during harvest and prior to storage for next year's use.

Clean and disinfest harvest equipment and facilities before harvest begins: packing/sorting equipment, cold storages, in-store coolers, farm market areas, plastic pails, grape lugs, etc. Have in place specific procedures and assign responsibility for regular maintenance/cleaning of equipment and areas during harvest. Check cleaniliness on a regular basis to keep those responsible on their toes. Repeat the same process at the end of harvest.

What could be worse than running out of fiber baskets during the peak week of harvest? Check inventory before the harvest begins. Obtain and keep on hand sufficient quantities of packaging materials and labeling: fiber baskets, clam shells, flats, pails, etc. Leftover materials are a head start on next year's inventory. At the end of harvest, collect and return unused materials to a clean central storage area for next year.

"Where do I go from here?" Much time and effort can be saved by developing and using signage. Streamline harvest operations by designing and posting needed signage and instructions prior to harvest. These may include things like parking signs, arrows directing u-pick customers to specific fields, restroom cleaning instructions etc. Purchase and have on hand flagging tape, wire flags, and other needed marking materials as appropriate. Keep an inventory list of needed signage and determine what worked or didn't work. Note any additional signage needs at the end of the season. Collect and store signage after harvest for next year's use, to keep materials clean and in good condition.

If you have a retail operation, be sure to check that supply list as well: price tags, bags, produce containers,and so on. Don't forget to print lots of copies of your business promotional piece or ads for your next harvest to tuck into the bag along with each purchase.

III. The Mechanics of Small Fruit Harvest

Small fruits are probably the most perishable of all fruits. Production of high quality small fruit requires special attention to a number of preharvest and postharvest factors, as well as the mechanics of harvest itself. Preharvest factors to consider include cultivar selection, growing site, plant health and nutrition, and disease and pest management. For more information on these important topics, see the references listed at the end of this article.

Harvest conditions should also be considered for maximum berry quality. For example, avoid harvesting wet berries whenever possible. Waiting a few hours after rain or heavy dew to begin harvesting can significantly

reduce post harvest diseases and improve fruit quality. Visible decay can develop in less than 12 hours on warm, wet berries.

Along the same lines, temperature can play a significant role in berry quality. Berries harvested early in the morning or in the evening when temperatures tend to be cooler have better shelf life. Harvested small fruit should never be left in the sun; their dark colors readily causes them to absorb heat. Berries also continue to respire after harvest, generating their own internal heat, and causing shrinkage and reduced sweetness. Low temperature is one factor that helps to slow the respiration process, which is much faster in berry fruit than oranges or apples, for example. Berries should be cooled no later than 4 hours after harvest; sooner if possible. You'll get a much better return on your investment by making several trips to the cooling facility, than by making only one or two trips per day! More on this important topic in the next month's article on postharvest handling and storage.

Harvesting Strawberries

Strawberries ripen quickly under field conditions (28-30 days after full bloom) and at an even more rapid pace after harvest. To maintain good strawberry fruit quality during harvest, attention must be paid to two key factors: 1) stage of berry ripeness at harvest and 2) handling.

Strawberries should be harvested before they are fully ripe to extend shelf life and berry quality in storage. It is critical to harvest fields once every two days to minimize over ripened berries. Bright red berries harvested with a slight white tip will retain their firmness longer than fully ripe fruit; they also loose less water in storage. However, that intense strawberry flavor is not fully developed at this stage, and it becomes a compromise between flavor and storage potential. This may be minimized to some degree by selection of appropriate varieties.

Train workers in strawberry harvest, demonstrating the desired degree of ripeness and manner in which fruits should be harvested to minimize damage. Consider hiring pickers on hourly wages to harvest and remove over ripe and/or rotting berries to prevent other pickers from contaminating marketable berries during the harvest process. Be sure to dispose of cull berries away from fields under harvest to prevent recontamination of ripening berries.

Because of the fragile nature of strawberry fruit, container choice is also critical to berry quality. Wider, shallower containers help to minimize berry damage and crushing. Berries should be picked directly into market containers, not into larger containers then transferred to market containers later.

Rules For Strawberry Pickers
Keep your hands clean at all times. Wash hands after each visit to the restroom.
Harvest only bright uniformly red berries. Be sure to keep berry caps intact while harvesting.
Berries should be removed by snapping the stems between the thumb and forefinger, keeping the hand cupped under the berry to avoid dropping it.
Select berries of uniform ripeness to fill containers. Do not mix berries of different ripenesses in containers.
Place berries gently into containers to avoid bruising.
Do not overfill containers.
Do not put trash or cull berries into the container.

Never allow harvested fruit to remain in the sun. Move harvested berries to cold room or cooler as soon as possible.

Strawberries should be harvested in early morning after fruit have dried. Retain caps on harvested fruit for best shelf life.

Harvesting Blueberries

A mature blueberry bush will typically produce 7-10 lb of fruit per year. Blueberries, which do not ripen simutaneously, should be picked several times during the harvest period, generally at 7-10 day intervals. Blueberries continue to enlarge and ripen after they turn blue. Waiting 3-5 days after berries turn blue to harvest can significantly improve berry size and flavor. Temperature has an adverse effect on fruit quality; above average temperatures during harvest may call for shorter harvest intervals. Harvest intervals should asl decrease as the season progresses. Late varieties tend to require fewer pickings.

Blueberries are highly perishable and are easily damaged by rough handling or adverse temperatures. Studies have shown most blueberry consumers (including wholesalers) associate appearance and firmness with blueberry freshness and quality. Efforts to maximize quality must begin in the field at harvest. Instruct workers in blueberry harvest, demonstrating desired fruit ripeness and proper picking techniques.

Encourage workers to remove all damaged fruit during harvest to minimize fruit handling. Consider offering a premium to those workers whose flats are consistently free of damaged or poor quality fruit. Employ a responsible person to supervise pickers at all times. This person should randomly inspect one or two pints from each flat. Empty the pint into a shallow pan so each berry may be inspected individually. More than 6 to 8% poor quality fruit per pint should be considered unacceptable (and also not eligible for premiums). If pails are used in berry harvest, they should be of rigid construction and 5 qt or smaller in size to prevent crushing of fruit.

Rules For Blueberry Pickers
Keep your hands clean at all times. Wash hands after each visit to the restroom.
Harvest only ripe berries with completely uniform blue color, with no green or reddish color at the stem end. Leave immature fruit for the next harvest.
Berries should be removed with the thumb and forefinger, keeping the hand cupped under the berry to avoid dropping it.
Don't overfill your hands to avoid bruising or crushing fruit
Do not squeeze or roll ripe fruit. Over handling the berries will remove the bloom (whitish, dusty appearance of the blueberry surface, considered a highly desirable quality by blueberry consumers).
Do not put trash or cull berries into the container.
Never allow harvested fruit to remain in the sun. Move harvested berries to cold room or cooler as soon as possible.

How many pickers will be needed? A general rule of thumb is 2 to 4 pickers per acre at the beginning and end of the season, and 8-10 pickers per acre during peak harvest periods.

Harvesting Brambles

Bramble fruits, raspberries and blackberries in particular, are very perishable. However, careful attention to harvest and post harvest handling and storage should provide reasonable shelf life for marketing and consumption.

Raspberries ripen quickly, but not uniformly over the plant or planting. This necessitates harvest on as tight an interval as every other day. For best fruit quality, raspberries should be harvested before they are fully ripe. They should be picked when they are uniformly bright red in color, but before any darker color develops. Because of their highly perishable nature, brambles should always be picked directly into market containers. Half pint containers are preferable; containers should never hold more than 4 layers of berries to prevent crushing of fruit.

Rules For Raspberry Pickers
Keep your hands clean at all times. Wash hands after each visit to the restroom.
Do not touch berries before they are ready to harvest.
Harvest only light colored berries. Leave immature fruit for the next harvest.
Berries should be removed with the thumb and forefinger, keeping the hand cupped under the berry to avoid dropping it.
Don't overfill your hands to avoid bruising or crushing fruit
Do not put trash or cull berries into the container.
Never allow harvested fruit to remain in the sun. Move harevested berries to cold room or cooler as soon as possible

Harvesting Currants and Gooseberries

Currants and gooseberries ripen over a 2-4 week period. Two to three harvests are usually sufficient to harvest fruit at peak ripeness.

Currants. Avoid mesh baskets for currants as individual berries become caught in the mesh, tear and leak. Damaged fruit should be discarded or used for processing as post harvest rots may quickly develop. Half pint or pink containers are good for fresh fruit; solid baskets and clear clam shells also work well.

Red and white currants. Yields for these vary greatly depending on cultivar, growing conditions etc. In general yields range from 3-10 lb/ plant. Fruit for storage should be picked firm and dry. To avoid damaging fruit during harvest, pick whole strigs (berry clusters) by stems and not individual berries. Pickers should be careful not to crush the top berry on each strig while harvesting. Red currants intended for fresh market fruit should be picked before skins change from bright to dull red in color. White currants should be harvested while skins remain bright and translucent.

Black currants. Unlike red and white currants, berries on strigs ripen at different times. Individual ripe berries should be harvested, not entire strigs.

Average yield for European black currant varieties is about 10 lb/bush; for American varieties, slightly less. Berries should be uniformly black or dark blue with no trace of green when harvested. Pick berries for storage while still firm and dry.

Gooseberries. Average yield for gooseberries is 8-10 lb/bush; for cordon trained plants (single stem) expected yields are 1-2 lb/plant. Gooseberries present some challenges during harvest because of thorns. Pickers should wear a leather glove on the hand holding branch up or steady while harvesting. Berries should be gingerly harvested with other ungloved hand, avoiding thorns as best as possible.

Rules for Currant and Gooseberry Pickers
Keep your hands clean at all times. Wash hands after each visit to the restroom.
Pick and pack fruit only when dry; never harvest fruit wet.
Red and white currants should be harvested as whole strigs. Avoid crushing the top berry of each strig while harvesting.
Black currants should be harvested as individual ripe berries.
Watch out for thorns when harvesting gooseberries!
Damaged fruit becomes easily infected by post harvest fungi, and should be discarded or kept for processing.
Do not put trash or cull berries into the container.
Never allow harvested fruit to remain in the sun.
Move harvested berries to cold room or cooler as soon as possible.

In Conclusion

Avoid a fumble at the 2 yard line! After a season's worth of effort getting high quality berries ready for harvest, take them over the goal line for a touch down by having your harvest game plan in place and operating even before the 2007 berry season game begins.

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(Reprinted from: New York Berry News, Vol. 6 No. 5, May 21, 2007.)