



Section 4: Quality

After each topic in this section there is a set of questions designed to help you examine and evaluate the quality assurance function of your business.

Apple quality can mean different things to different people.

Apple processors may think of quality in terms of apple varieties; capability to maintain integrity in storage, brix, acidity, firmness, capacity to be sliced as it softens, integrity after freezing, body after cooking, browning characteristics both during and after processing, processed shelf life and/or “yield” after processing.

Processors also include size and being free of defects that affect storability (bruising, decay) as quality issues over all varieties they purchase.

Fresh-apple buyers are concerned with taste (brix, acidity, texture, juiciness, and even aroma or “bouquet”), appearance (color, shape and absence

of defects), firmness and ultimately shelf life in the consumer’s home. The person who eats an apple usually expects it to taste “ripe,” as if it just came off the tree.

Many people today are also concerned about the fruit being free of pathogens, as well as substances, or processes which may harm the people producing, handling and/or consuming food. Everyone producing and handling food may soon be required to provide an “audit trail” documenting where the food has come from and what it has been exposed to, from the soil to the supermarket shelf. This process is called “traceability.” Some export markets now require an audit trail (EurepGAP) and domestic markets may also soon require something similar.

This section is divided into six parts:

1. Communication with apple buyers
2. Size, Color, and Shape
3. Fruit Absence of defects
4. Apple maturity
5. Apple handling: picking, using containers, transporting & storage
6. Assuring food safety & Good Agricultural Practices

EXERCISE: Process Apples: Pull together all processor statements summarizing their apple purchases from your farm for this past season. Create a folder for each processor including the statements, weigh tickets and inspection sheets.

Fresh Apples: Pull together all storage/packinghouse/trucking delivery receipts, packout statements and any summaries from these items summarizing your operation from the past season. Create a folder for each marketer including delivery tickets, packout statements, and payment summaries.

If your apple buyer does not summarize purchases, you may use **Worksheet #5 (Process Apples)** or **Worksheet #6 (Fresh Apples)** to summarize this past years crop.

Answer the questions after each topic using the summaries or worksheets along with other information from your farm.

1. Communication with Apple Buyers: Improving apple quality must begin with identifying the problems. Good communication with apple buyers is critical in identifying existing problems, some of which may occur only during a particular year. Other problems, though, may be persistent, and result in losing a market.

1. Do I receive inspection statements from processors, or fresh apple receivers *the day of delivery* or *within 3 days from out-of-state firms*, so that problems may be addressed quickly? Yes No
2. Do I review inspection statements and weigh tickets at the end of each day so that I can address problems in a timely manner? Yes No
3. Do I study the apple purchase summaries sent to me at the end of the year to help me determine how I can improve apple quality? Yes No
4. If summaries are not sent to me, do I generate those summaries myself? Yes No
5. After summarizing deliveries for each apple buyer, what percent of apples destined for the peeler or fresh-pack market ends up culled (juiced)? _____ %
6. What are the principal reasons apples intended for a peeler market or fresh market end up juiced? _____

7. Do I have particular varieties on my farm that have a higher percent of deliveries being juiced? Yes No
If so, why? _____

8. Does each buyer communicate regularly with me concerning the current market demand for size, shape and color for each variety? Yes No
9. Do I read letters and newsletters sent to me by apple buyers in the off-season (November – June)? Yes No
10. Does my fresh-apple packer or marketing agency provide me with an analysis stating why my fruit was culled from the packing line or did not make the “first” pack? Yes No
11. Can my packer or marketer identify the block name or number for a particular lot of apples? Yes No
12. Can I trace processor inspection tickets or fresh packout statements back to a particular orchard block? Yes No
13. Do I tag every bin of apples that leaves the orchard with the block number, variety, date of harvest and picker to help me to address problems in a particular block? Yes No
14. Do I have my truck drivers record which block of apples they are picking fruit up from and then who it’s delivered to? Yes No
15. Does my marketer work with me to determine the best marketing plan for particular blocks of fruit on my farm based on his or her markets and the conditions in those blocks? Yes No
16. Does my marketer come out to my farm and *examine* and *discuss* the apples he or she is willing to market? Yes No
17. Do I summarize and review my fresh apple returns from each marketer that I work with *by variety, every summer after* I have received payment for all fresh apples? Yes No
18. After answering all of the questions above, are there some additional services or information that I should be requesting from my apple buyers? _____

2. Color, Size and Shape: Review the market color standards by variety in the appendix and your apple delivery summaries then answer the questions below:

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| 19. What percent of my total process apple deliveries are larger than 2 1/2 inches? _____% | 27. Am I dormant-pruning fresh apple trees annually to allow sunlight to penetrate into the tree? Yes No |
| 20. What percent of my fresh apple packouts end up in bags because of size (2 1/2 inches or less)? _____% | 28. Am I hand-thinning fresh apple trees to single out apples for coloring? Yes No |
| 21. Are pickers instructed to leave small apples in the orchard? Yes No | 29. Do I summer-prune fresh apple trees to maximize fruit exposure to sunlight? Yes No |
| 22. Do I have difficulty meeting the market color standards for any of the fresh apple varieties I produce? Yes No | 30. Do I consistently do a decent job chemical thinning? Yes No |
| 23. Do I get feedback about color being a problem from the packers or marketing agencies that I work with? Yes No | 31. Am I using blossom thinners with appropriate hard-to-thin varieties? Yes No |
| 24. Do I require apple pickers to "spot" pick for a particular percent color based on the variety they are picking? Yes No | 32. Do I hand-thin early enough to improve fruit size? Yes No |
| 25. Do I have a quality checker in the orchard to monitor picker adherence to spot picking requirements? Yes No | 33. Am I able to irrigate during water-deficit weeks? Yes No |
| 26. Do I have alternative markets for apples that are too small or too large for wholesale fresh markets? Yes No | 34. Am I enhancing the shape of some apple varieties by using growth regulators such as Promalin? Yes No |

3. Freedom from Defects:

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| 1. Have I had loads rejected as peelers or by my fresh-apple buyer because there is a problem with defects? Yes No | I can address problems in the next growing season? Yes No |
| 2. Do I review processor-inspection sheets to identify defects and pest problems at the end of each day during harvest deliveries? Yes No | 4. Which defects have my packer identified? Circle any that apply. (scab, bitterpit, sooty blotch, flyspeck, cucurlio, external feeders, internal feeders, russetting, bruising, decay, etc.) |
| 3. Have I trained my quality control checkers to identify defect problems and note them during apple harvest? Is this information recorded so | 5. Do I hire someone to scout my orchards for insects, mites and disease at least once a week? Yes No |

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| <p>6. Do I follow my pest management consultant's recommendations with timely pest applications? Yes No</p> <p>7. Do I follow a calcium spray regimen with varieties known for bitterpit? (Cortland, Jonagold, Honeycrisp, Spy, Fortune, Crispin) Yes No</p> | <p>8. Am I able to divert fresh-apple blocks to alternative markets when there are serious defect problems? Yes No</p> |
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4. Apple Maturity

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| <p>1. Do I meet processor premium-delivery dates? Yes No</p> <p>2. Am I able to market process apples to the highest paying markets because I consistently meet their quality standards? Yes No</p> <p>3. Does my processor regularly update delivery dates by variety, and do I check for changes in those dates at least weekly? Yes No</p> <p>4. Do I subscribe to a harvest-maturity fax service or newsletter from Cooperative Extension? Yes No</p> <p>5. Am I in communication on a regular basis with my marketer about which apple maturity indices are critical to him or her? Yes No</p> <p>6. Does my marketer have a field person to advise me on what are the best harvest dates for my particular blocks? Yes No</p> | <p>7. Do I (or someone I hire) monitor apple maturity (firmness, starch indices, soluble solids, color [% red, change in background color & change in flesh color], taste, seed color, presence of watercore) by block at on a weekly basis? Yes No</p> <p>8. Do I record the harvest dates and maturity indices of each block of apples annually to build a history for that block (to help gauge best harvest date in following years)? Yes No</p> <p>9. Do I have enough apple bins to pick the crop in a timely manner? Yes No</p> <p>10. Will my apple buyer provide apple bins if needed? Have I communicated my needs to him or her in a timely manner? Yes No</p> <p>11. Do I use a growth regulator such as Retain™ to lengthen or manage the harvest of fresh apple varieties? Yes No</p> |
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5. Apple Handling

Picking

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| <p>1. Do I discuss my expectations on "spot" picking at the beginning of the harvest season with apple pickers? Yes No</p> <p>2. Do I adjust and then communicate spot picking requirements for three or less factors (size, color, background color, specific defects) based on a particular orchard or market requirement? Yes No</p> | <p>3. Do I train apple pickers how to pick and handle apples in order to avoid bruising? Yes No</p> <p>4. Do I screen apple pickers for color blindness when they may be required to pick fresh apples for color? Yes No</p> <p>5. Do I monitor individual pickers in the orchard and suggest corrective action to avoid bruising (such as correctly fitting & adjusting</p> |
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picking buckets, proper use of ladders, correctly emptying their bags into the bin or how to twist and lift an apple when removing it from the tree) and to improve a picker's efficiency? Yes No

6. Do I hire and train a quality control-checker to be with each picking crew? Yes No

7. Do I have a policy for communicating with, and disciplining workers who continue to bruise apples or ignore spot picking requirements? Yes No

8. Have I communicated my expectations to orchard support staff (tractor drivers, quality-control checkers, crew bosses) and trained them to maximize efficiency and minimize conditions that cause fatigue for pickers? Yes No

9. Does *my attitude* and *communication* build team work between pickers and orchard support staff, is it effective enough that they are willing to bring problems to me? Yes No

10. **Cider & Juice Apples:** Do I have pickers pick up drops as they are picking peelers or fresh apples, or are drops picked up within 3 days from the time the orchard was originally picked? Yes No

11. **Cider & Juice Apples:** Are pickers instructed not to pick up decayed apples? Yes No

12. **Cider & Juice Apples:** Are drop apples delivered with a few days of being picked up? Yes No

Containers

1. Do I make sure that all bins have been repaired before harvest begins? Yes No

2. Have I secured enough bins for the anticipated crop? Yes No

3. Have I looked into the advantages of plastic bins for fresh apples? Yes No

4. Do I have a long-range-bin replacement plan? Yes No

5. Are bins placed conveniently for movement into the orchard? Yes No

6. When not using a bin trailer or sleds, has an orchard been boxed out adequately and correctly? Yes No

7. Do I have enough bin trailers or sleds to maximize harvest efficiency? Yes No

8. Are bin slats, hammers and nails available in the orchard for bin repairs? Yes No

9. Do I use cardboard bin liners when appropriate (direct marketed apples)? Yes No

Transportation

1. Have tractor drivers been trained in correctly handling bins to avoid bruising when moving bins out of the orchard? Yes No

2. Have truck drivers been trained to minimize bruising when transporting apples (choosing routes that avoid bad roads)? Yes No

3. Have lanes and driveways been maintained to remove bumps and holes that bruise apples in the bin? Yes No

4. Have arrangements been made for trucking with outside firms or through your marketer, and do you have a plan for temporarily storing fruit should there be a delay in trucking? Yes No

5. Do you have the name and telephone number of the trucking dispatch office and / or the trucker's cell phone? Yes No

6. Have you given your cell phone number to the trucking firm? Yes No

7. Do all trucks and trailers transporting apples have an "air ride" system? Yes No

Storage

1. Do you make arrangements to reserve space in storages with which you do business before harvest begins? Yes No
2. Do you honor your space reservations and communicate changes as soon as you are aware of those changes? Yes No
3. Are all bins of fresh apples removed from the orchard and delivered the day of picking? Yes No
4. Are process apples delivered as soon as possible after picking? Yes No
5. If apples cannot be delivered on the day of picking, are the apples placed in a nearby storage until arrangements can be made for delivery? Yes No
Is this storage refrigerated? Yes No
6. Do you store only "packable" (80% or more of the bin will be placed in trays or bags, not juiced) apples? Yes No

7. Have you discussed drenching and storage temperatures based on the anticipated length of storage time with your marketer, based on the varieties you will be sending? (to avoid cold injury on susceptible varieties: Macs, Empires) Yes No
8. Have you discussed the use of 1-MCP with your marketer? Yes No
9. Is your marketer monitoring ethylene generation of key varieties? Yes No
10. Do you communicate on a regular basis with the storage operator concerning delivery of apples and the closing of rooms? Yes No
11. Does the storage which receives your fruit evaluate it for firmness, starch indices and fruit quality and share this information with you? Do you file this information to build a historical record of a particular block's maturity performance? Yes No

6. Assuring Food Safety/Good Agricultural Practices

1. Am I tagging every bin of apples leaving the orchard with the block number, variety, date-of-harvest and picker to allow me to trace problems to a particular block? Yes No
2. Do I have my truck drivers record which block of apples they are picking fruit up from and who it is delivered to along with the inspection and weight ticket number? Yes No
3. Can my packer or marketer identify the block name or number for a particular lot of apples? Yes No
4. Do I have a written record of all practices which might affect the quality of a block of apples? Yes No
5. Do I have a historical record of crops grown on each parcel of property I own, and produce fruit on, since I have owned it? Yes No
6. Do I have a record of labor safety and comfort practices documented to demonstrate that I observe good labor-management practices? Yes No

7. Do I follow recommended environmental conservation practices on my farm? Yes No
8. Have I reviewed and implemented any current audit programs recommended or required by export apple buyers (EurepGAP)? Yes No
9. Have I read or reviewed Cornell Cooperative Extension publications outlining Good Agricultural Practices (GAP)? Yes No
10. Do I have a copy of GAP's for supervisory personnel to read and study? Yes No
11. Has my management team discussed implementation of GAP's? Yes No
12. Have I attended educational workshops to learn more about EurepGAP? Yes No

Apple Quality Planning Summary

Refer back to your responses to the questions in this section and complete this summary. List below the areas of improvement you have identified for apple quality.

Apple Quality Areas for Improvement
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3.
4.

