

TO: Industry Organizations, WSHA Grade and Pack and Board of Directors

FROM: Grade and Pack Co-Chairs, Scott Smith & Mark Tudor

RE: Revising Washington Grade Standards

The WSHA Grade and Pack Committee is preparing a proposal to revise Grade Standards for Washington apples for the 2002 crop. The intent is to set standards that distinguish Washington apples from all others and leads to repeat sales. This memo is to update you on the committee's progress and to seek your input into the proposed Grade Standard being discussed by the Grade and Pack Committee.

The plan is to begin the rulemaking process with the Washington State Department of Agriculture by July 2001. The Grade and Pack Committee would like your input prior to the next meeting, which is set for May 30, in Ellensburg.

The effort to date, which has been underway for more than a year, has involved a number of steps. The most significant is the research to gather information and data – allowing the industry to set standards based on edibility and consumer preference.

Dr. Eugene Kupferman of the WSU-Tree Fruit Research Extension Center, along with Dr. Roger Harker of HortResearch in New Zealand, developed the research project. The Washington Apple Commission and the Washington Tree Fruit Research Commission funded the project. The research effort, which was started in November, involved two components: developing information about consumer response to apples, and identifying the quality of apples being shipped from Washington State this season. The research project is scheduled to end in July. (Though the project is slated to end in July, both researchers agreed that there is enough information to move ahead on this critical issue now.)

Here's a brief summary of the findings to date.

- ▶ □ Consumer expectations on quality are increasing
- ▶ □ An increase in consumer preference (acceptability) will result in an even greater increase in demand for apples
- ▶ □ With Gala apples, 13% of consumers find this variety "unacceptable" at 12.7 lb.
- ▶ □ With Fuji apples, it is not until the firmness is 14.5 or greater that consumers indicate a positive liking of apple texture

▶ □Based on literature from around the world (including Washington information), Dr. Harker proposes the following criteria AT TIME OF CONSUMPTION for apples of all varieties, except Golden Delicious, based on consumer acceptance:

- FIRMNESS – at least 13lb
- SOLUBLE SOLIDS – at least 12%
- STARCH – cleared to 4.0 (0-6 scale)

▶ Using the above recommendation as a baseline, Dr. Kupferman has projected how that grade standard would impact the 297 lots tested. The results are in the two tables below.

Table 1. Percent fruit below each minimum firmness level for each variety. Data is taken from fruit sampled from 36 packinghouses from Dec 25 – April 1, 2001. Shaded area is the recommended level for minimum rejection by consumers at time of consumption.

Minimum Firmness	Red Delicious	Fuji	Gala	Granny Smith	Golden Delicious
Below 12 lb	11 %	4 %	16 %	3 %	26 %
Below 13 lb	18 %	13 %	29 %	6 %	40 %
Below 14 lb	32 %	30 %	45 %	10 %	58 %

Table 2. Percent lots below each minimum soluble solids level for each variety. Data is taken from fruit sampled from 36 packinghouses from Dec 25 – April 1, 2001. Shaded area is the recommended level for minimum rejection by consumers at time of consumption.

Minimum Soluble Solids	Red Delicious	Fuji	Gala	Granny Smith	Golden Delicious
Below 10 %	0	0	0	0	0
Below 11 %	1	0	4	0	2
Below 12 %	6 %	4 %	7 %	21 %	6 %

ATTACHED: You will also find the following information attached as it relates to this issue:

- Grade and Pack Grade Revision Proposal
- Questions
- Cost Projections from WSDA
- Estimated Impacts of Grade Changes

THE PROPOSAL – Revising Washington Grades

The committee is seeking industry input into the following proposal for Washington apple grades. This proposal would be implemented, if approved, for the 2002 crop (September 1, 2002). The WSHA Grade and Pack Committee will meet on May 30. We would like your input before the meeting.

PHASE I.

1. The following standards apply **ONLY** to Washington apple grades.
2. Testing program is to be in place **ALL SEASON**. The release date will be eliminated. Granny Smith, no change in current system.
3. There must be a tolerance since packing equipment is not capable of distinctions in firmness. Testing for firmness will be performed using current Washington State Department of Agriculture methods.
4. Soluble Solids testing is also recommended. Testing for Soluble Solids will be performed using current Washington State Department of Agriculture methods.
5. Mandatory re-testing at time of shipping if the shipping date is more than 21 days from packing.

<u>Variety</u>	<u>Pressure Test - 5% tolerance</u>	<u>Soluble Solids</u>
Red Delicious	13.0	12 %
Gala	13.0	12
Fuji	13.0	13
Golden	12.0	12
Braeburn	13.0	12
Granny Smith	13.0	12
Jonagold	12.0	12

PHASE II.

1. Review the effect of the new standards annually and include a professional economist.
2. Studies should be launched to further define consumer response to apples (regional, ethnic and age).
3. Studies should be funded to define quality in additional varieties as they are introduced.

REQUEST FOR INFORMATION

The WSHA Grade and Pack Committee is seeking industry input into revising Washington apple grades. The WSHA Grade and Pack Committee is recommending that the grade changes, if adopted, would be implemented for the 2002 crop (September 1, 2002). The WSHA Grade and Pack Committee will meet on May 30. We would like your input before the meeting.

ESTIMATED IMPACTS OF GRADE CHANGES (AT 10% TOLERANCE)

This is a more detailed review by Dr. Kupferman of the fruit tested under his research effort and how a change in standards might impact the volume of fruit packed (with a 10% tolerance). With each variety, he also makes a recommendation. His comments are limited to the following varieties: Red, Golden, Gala and Fuji.

Red Delicious

The challenges with Red Delicious quality fall into three categories. One problem is at harvest time with starchy fruit with no soluble solids. A second problem is during the season with soft fruit that is mealy. A third problem is fruit that has no flavor (soluble solids). Therefore fruit should meet high standards all season. There should be no release date and testing should go on all season.

The tables below illustrate the trade off between volume and firmness. These numbers were taken from fruit sampled at time of packing from Dec 27, 2000 to April 1, 2001 from 36 packinghouses. From each lot there were 10 apples tested; each fruit was tested twice and averaged. There were a total of 68 lots of Red Delicious tested. The range of firmness averages for the lots was 11.2 to 17.4 lb.

Variety	% lots with greater than 90 % fruit above 12.0 lb	% lots with greater than 90 % fruit above 12.5 lb	% lots with greater than 90 % fruit above 13.0 lb
Red Delicious	75 %	66 %	62 %

Should there be a soluble solids minimum for Red Delicious?

Lack of flavor relates well to lack of soluble solids. The range of soluble solids was 10.2 to 15.3%. One slice each from ten apples was obtained from each of 82 lots of fruit.

Variety	% lots with soluble solids at or above 12.0 %	% lots with soluble solids at or above 12.5 %	% lots with soluble solids at or above 13.0 %
Red Delicious	95 %	91 %	63 %

Are the firmer apples higher in soluble solids?

No, it is very possible to have Red Delicious apples of 16 – 17 lb that have 10 or 11 % SS. However, most of the apples tested were at least 12.5 % SS and above.

In conclusion, Red Delicious apples would be positively affected by a change in firmness standards. Raising the level to 13.0 with a 10% tolerance would assist in significantly reducing mealy apples. However, without soluble solids testing it would be possible to have fruit meet the standards for this grade and terribly immature (firm but tasteless). Thus it is important to have a minimum soluble solids standard. I suggest that the standard be set at 12.5 %

Gala Apples

The challenge of Gala apples is to provide consumers with fruit that is firm and flavorful. It is an apple that is softer than many other varieties and has Golden Delicious parentage.

The sampling program has included 46 lots of Gala apples. The firmness of the lots has ranged from 12.2 to 17.6 lb averages per lot. The range of firmness in a particular lot is wide. Imposing minimum firmness standards on Gala would have the following impact on volume.

Variety	% lots with greater than 90 % fruit above 11.0 lb	% lots with greater than 90 % fruit above 11.5 lb	% lots with greater than 90 % fruit above 12.0 lb	% lots with greater than 90 % fruit above 12.5 lb
Gala	87 %	71 %	61 %	50 %

Should there be a soluble solids minimum for Gala?

Lack of flavor relates well to lack of soluble solids. The range of soluble solids was 10.1 to 15.1 %. One slice each from ten apples was obtained from each of 44 lots of fruit.

Variety	% lots with soluble solids at or above 12.0 %	% lots with soluble solids at or above 12.5 %	% lots with soluble solids at or above 13.0 %
Gala	93 %	86 %	70 %

Are the firmer apples higher in soluble solids? No, it is very possible to have Gala apples of 14-16 lb that have 10 or 11 % SS. However, most of the apples tested were at least 12.5 % SS and above.

In conclusion: The standard for Gala apples should be set at a minimum of 11.0 lb with at least 12.5 % soluble solids.

Golden Delicious

When Golden Delicious are of poor quality they suffer from high acidity and low sugars often in association with green skin color, or on the other end of the scale from dry, punky texture, lacking crispness and juiciness.

The sampling program has included 46 lots of Golden Delicious apples. The firmness of the lots has ranged from 12.2 to 17.6 lb averages per lot. The range of firmness in a particular lot is wide. Imposing minimum firmness standards on Golden Delicious would have the following impact on volume. Current standard is 10 lb.

Variety	% lots with greater than 90 % fruit above 11.0 lb	% lots with greater than 90 % fruit above 11.5 lb	% lots with greater than 90 % fruit above 12.0 lb	% lots with greater than 90 % fruit above 12.5 lb
Golden	76 %	72 %	59 %	46 %

Should there be a soluble solids minimum for Golden?

The range of soluble solids was 10.8 to 15.5 %. One slice each from ten apples was obtained from each of 50 lots of fruit.

Variety	% lots with soluble solids at or above 12.0 %	% lots with soluble solids at or above 12.5%	% lots with soluble solids at or above 13.0 %
Golden	94 %	90 %	78 %

In conclusion:

I suggest that the same standard be used for Golden and Gala and that is minimum of 11 lb. firmness and 12.5 % soluble solids.

Fuji

Fuji apples are most often firm, but poor quality apples lack sugars and acidity.

The sampling program has included 52 lots of Fuji apples. The firmness of the lots has ranged from 12.2 to 17.6 lb averages per lot. The range of firmness in a particular lot is wide. Imposing minimum firmness standards on Fuji would have the following impact on volume.

Variety	% lots with greater than 90 % fruit above 12.0 lb	% lots with greater than 90 % fruit above 12.5 lb	% lots with greater than 90 % fruit above 13.0 lb
Fuji	96 %	85 %	80 %

Should there be a soluble solids minimum for Fuji?

Lack of flavor relates well to lack of soluble solids. The range of soluble solids was 11.5 to 15.7 %. One slice each from ten apples was obtained from each of 50 lots of fruit.

Variety	% lots with soluble solids at or above 12.0 %	% lots with soluble solids at or above 13.0 %	% lots with soluble solids at or above 13.5 %	% lots with soluble solids at or above 14.0 %
Fuji	96 %	81 %	63 %	44 %

In conclusion:

I suggest that the Fujis should be a minimum of 12.5 lb. firmness and 13.0 % soluble solids.

INDUSTRY QUESTIONS:

Grade standards that require both pressure and soluble solid tests will lead to higher inspection costs. In order to limit or reduce those higher inspection costs, the industry could outline a grading system using release dates for just soluble solids, reducing the number of tests later in the marketing season. Would you support a grade change that incorporated a release date for soluble solid testing?

YES _____

NO _____

Rather than adjust the grade standards for Reds, Goldens and the other varieties, would you support the creation of a new, higher quality "Premium Plus" grade that incorporates both higher pressure and soluble solid levels rather than adjusting the current Washington grade standards?

YES _____

NO _____

INSPECTION COST ESTIMATES

From the Washington State Department of Agriculture

Prior to making any grade changes, the WSHA Grade and Pack Committee wanted to know how the changes might impact inspection fees. The committee requested inspection fee cost estimates from the Washington State Department of Agriculture (WSDA) based on the changes being discussed. For a two-week period in April, the WSDA commodity inspection division tracked the number of lot changes at each packing facility for all varieties. The survey allowed the department to develop inspection fee cost projections. The estimates for inspection fee increases are set using current WSDA inspection procedures. The department has requested that we highlight that these figures are estimates and that costs could vary.

Red Delicious – Year-long testing for soluble solids and firmness

The WSDA survey indicates this would require an additional 40 percent increase in staff, thereby increasing inspection fees. Under this proposal, the industry could anticipate an inspection fee charge of 20.3 cents per cwt for state inspection and 21.7 cents per cwt for federal inspection. (Current fees are 14.5 cents per cwt for state and 15.5 cents per cwt for federal.)

Other Varieties (Golden, Gala, Granny, Fuji, Braeburn, Jonagold) – Year-long testing for soluble solids and firmness

The WSDA estimates that this proposal would require a 70 percent increase in staff, resulting in inspection fees increasing. Under this proposal, the industry could anticipate an inspection fee charge of 24.65 cents per cwt for state inspection and 26.35 cents per cwt for federal inspection.