

## Exporting Apples to Taiwan

Washington exported approximately 2.1 million bushels of 2007 crop apples to Taiwan - a value of over \$40M. This was an increase of 8.9% in box sales over the previous year. But, exporting is not an easy business. Since the market closure of 2004, the pacific region has operated under a Systems Approach Work Plan for the export of apples to Taiwan. Facilities wishing to export to Taiwan must sign up with the Northwest Horticultural Council (NHC) – the export agent that manages

the trade agreement. Facilities and fruit cutters must be certified by WSDA and codling moth (CM) control efforts must be evaluated for each orchard before fruit can be considered for packing. Those performing orchard evaluations must be licensed pest consultants, licensed commercial pesticide applicators, or attend NHC sponsored training. Training is offered through the WSU-Tree Fruit Research & Extension Center. Contact Wendy Jones at (509) 663-8181.



Taiwanese street market fruit stand.

## The 3-Strikes Penalty Structure

In 2004, CM detections closed the entire Taiwan export market for four months while negotiations took place to reopen the market to



orchards and facilities that were not connected to the detections. This closure resulted in an estimated loss to the industry of \$26M as well as a complete revision of the Taiwanese export work plan. The new export plan was developed around a "3-Strike" penalty structure. Under this structure, a live CM larva found in a shipment during Taiwan inspection results in a "Strike". One "Strike" results in the suspension of the related orchard and facility from

Taiwan export for the remainder of the season. Each of the first two "Strikes" against the industry requires a USDA investigation within one week of the incident to determine how the insect made it through the screening process. If a third "Strike" occurs, the entire market is closed to Taiwan export and a full review will occur.

Another closure would likely be longer and much more costly.

## The Systems Approach & the Grower

Section one of the Taiwan System Approach Work Plan contains the requirements for qualifying an orchard for export consideration and the types of CM management practices that are allowed. Complete and accurate records should be maintained by the grower for any activity related to CM control. Spray records, trap counts, lure type and replacement dates, pheromone practices, etc., must all be maintained and made available to USDA and Taiwan

upon request. Such requests could be made during fall site visits or during an investigation of a codling moth detection. The work plan also states that "before any grower lot is submitted for packing, the efficacy of the orchard codling moth control program must be evaluated to eliminate high risk orchards". On-tree visual sampling or sampling from bins in the field is done to satisfy this request. Only qualified individuals may do this sampling.



# Orchard Sampling

The first method for qualifying an orchard for Taiwan export is an on-tree visual fruit inspection. Using the official sampling worksheet is mandatory because this sheet must be submitted to WSDA for phytosanitary certification of the lot prior to shipment. The interactive worksheet helps to determine how many trees need to be sampled before an orchard can be accepted or rejected. A trained or licensed person must do the sampling. Visual inspections should begin in the portion of the

orchard identified to have the highest CM pressure, which will aid in quick elimination of problem orchards. Each tree-sample consists of 60 half-fruit. The number of fruit found that contain live CM larvae is recorded on the worksheet. This count is then compared to the appropriate columns on the worksheet to determine if the orchard is rejected, accepted, or more sampling is needed. A full instruction sheet is included with the worksheet and available online at <http://pmtip.wsu.edu>.

Taiwan Export Program Orchard Counting, Math Control Worksheet

Important: orchard counts to determine if lot, but from a specific grove lot is eligible for export to Taiwan. For sample sizes in general, refer to the label on the container.

Trees	Size of No. Fruit Above or equal to	No. Fruit with Live Larvae	Com. no.
1	1		
2	2		
3	3		
4	4		
5	5		
6	6		
7	7		
8	8		
9	9		
10	10		
11	11		
12	12		
13	13		
14	14		
15	15		
16	16		
17	17		
18	18		
19	19		
20	20		
21	21		
22	22		
23	23		
24	24		
25	25		
26	26		
27	27		
28	28		
29	29		
30	30		
31	31		
32	32		
33	33		
34	34		
35	35		
36	36		
37	37		
38	38		
39	39		
40	40		
41	41		
42	42		
43	43		
44	44		
45	45		
46	46		
47	47		
48	48		
49	49		
50	50		

Green/Orchard Name: \_\_\_\_\_ Variety/Grover Lot Number: \_\_\_\_\_

Sampled By: \_\_\_\_\_ Date: \_\_\_\_\_

This document was developed by the staff of PMTP. It is provided as a guide to the sampling process. It is not intended to be used as a substitute for the official Taiwan Export Program Orchard Counting, Math Control Worksheet. For more information, please visit the PMTP website at <http://pmtip.wsu.edu>. The information on this page is for informational purposes only and does not constitute a warranty of any kind. The information on this page is for informational purposes only and does not constitute a warranty of any kind. The information on this page is for informational purposes only and does not constitute a warranty of any kind.

For more on sampling, training, and forms click on the "Taiwan CM Protocol" link at <http://pmtip.wsu.edu>

# Bin Sampling

If the bin sampling method is used to evaluate CM risk, 1500 fruit are sampled randomly from 60 field bins representing the entire lot for each variety. This means that 25 fruit are examined from each of 60 bins. If the lot is smaller than 60 bins, all bins are sampled and the number of fruit examined from each bin is increased to satisfy the 1500 fruit requirement. A minimum of 150 fruit out of the total 1500 must be cut and checked for live larvae. If there are less than 150 suspect fruit, fruit without apparent damage must be cut. A maximum of two fruit with live larvae is allowed before rejecting a lot. Ideally, bins

should be sampled in the orchard before being loaded. This makes it easier to sample bins representing the entire lot. When bins arrive at a packing facility, they may be split and sent to different cold rooms. Separating the lot complicates the task of taking representative samples. If this occurs, a separate 60 bin sample must be done from each room. This principle also applies when rooms are opened and only part of the bins are taken out to pack or sort. Only certified cull cutters, licensed consultants, commercial applicators, or NHC approved trained people can do bin sampling.



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