NELSON : REPORT ON UNVENTED GRAPE LUGS

File Copy

UNIVERSITY OF CALIFORNIA, DAVIS

BERKELEY • DAVIS • IRVINE • LOS ANGELES • RIVERSIDE • SAN DIEGO • SAN FRANCISCO

SANTA BARBARA • SANTA CRUZ

COLLEGE OF AGRICULTURE
AGRICULTURAL EXPERIMENT STATION
DEPARTMENT OF VITICULTURE AND ENOLOGY

DAVIS, CALIFORNIA 95616

I am writing, first, to thank you for your cooperation in the commercial shipping tests last year with the new method of packaging grapes in unvented lugs; second, to send you a brief report of these tests (copy enclosed); and third, to inform you of the current status of this project and plans for this year.

The enclosed report is very condensed, summarizing comments (favorable and unfavorable) extracted as objectively as possible from correspondence of shippers and receivers. Blank spaces indicate no comments were made. Shippers are indicated by number and for your information your number is _____.

Though the report is far from complete there are enough comments to form the basis of some valid conclusions from these tests. Freshness of stems and berries was a consistent attribute of the unvented pack. In spite of the humid condition in the packs, in only one case was decay noted as more than in the vented container (and then only slightly more). Wetness was mentioned a few times and apparently considered undesirable. This wetness undoubtedly is from condensation and not from decayed or crushed berries. It can be reduced considerably by modifying the packaging materials slightly.

You may note that shipper Number 4 stored his Thompson Seedless grapes for 11 weeks; however, I would not recommend the system for storage periods longer than 6-8 weeks without close checking of the fruit. With further refinements in the method I am confident that it will be possible to safely store longer than this, at least with the longer keeping varieties.

Since this type of pack will cost more initially, to be feasible, the additional cost must somehow be offset. The tests demonstrated that at least part of this increased cost may be recovered in more attractive fruit. Elimination of the standard SO_2 gassing treatment will reduce handling costs in several ways: 1) No direct costs of the treatment, 2) Less corrosion in the plant, 3) Mixing of commodities in storage and in the carriers, 4) Fewer delays in handling, 5) Less employee discomfort from SO_2 gas, and 6) Less critical control of air velocity and relative humidity during precooling and storage because water loss from the fruit is reduced to about one-tenth that in the vented container. Ultimately the method may result in drastic modifications in the design and construction of grape precoolers and cold storages.

The SO_2 pouches make it possible to eliminate sawdust in the export chest. The 6-8 week protection period provided by these pouches allows ample time for transit to export markets. Several tests with these pouches have demonstrated that the naked pack can be delivered to foreign markets in a fresh state with excellent decay control. With rapid developments in palletization and containerization dangers of damage from rough handling over the docks may be largely eliminated for grapes packed without sawdust. Thus the possibilities are very good that the industry may be able to use an export container only slightly more expensive than the domestic one now in use.

The unvented containers cool about half as fast as vented ones; however, the fruit is not harmed since it shrinks very little and decay is controlled. It should be emphasized though that this method is not a substitute for refrigeration. Cooling and low holding temperatures are still needed.

Looking forward to this season, there will be a limited supply of the SO_2 pouches and auxiliary materials available through commercial channels. Pouches and liners are being manufactured by Fibreboard Corporation. Questions as to cost, amounts and delivery dates can be secured from their representatives. If you are interested in using this material, I would suggest inquiries be made now since the special unvented liners must be made in several sizes to fit the various lugs now used by the industry.

My research studies will continue this season to try to: 1) reduce the cost of this packaging method, yet not reduce its effectiveness in preserving freshness and preventing decay; 2) lengthen the protection period for storage grapes; and 3) adapt this method to different types of consumer packages, since former difficulties of precooling and gassing consumer units are now eliminated. As a matter of fact the SO_2 pouches have kept grapes in 2-pound units fresh and free of decay for two months.

Should you have any questions regarding this project, please feel free to contact me.

Sincerely yours,

Klayton E. Nelson
Professor of Viticulture

KEN:gh

Encl.

MARKET CONDITION OF ALL GRAPES PACKED COMMERCIALLY IN UNVENTED CONTAINERS WITH SO_2 GENERATING POUCHES
SHIPPED DURING THE 1967 SEASON

	Variety	Lugs (No.)	Storage (weeks)	Condition (as compared to fruit packed and shipped in the standard vented container)								General Condition
				Berries						Stems		
				Freshness	Bleaching	Decay	Browning	Crushed	Wetness	Greeness	Plumpness	
1	Perlette	30	none	more	----	----	----	----	more	more	more	----------
2	Cardinal	30	none	----	----	----	----	----	----	----	----	Satisfactory
3	Perlette	30	none	----	----	----	----	few	----	----	----	Good, liked pack
	Th. Seed.	30	none	----	----	----	----	----	----	----	----	No report
4	Th. Seed.	24	11	more	----	----	----	----	----	more	more	Much better
5	Th. Seed.	24	----	more	----	----	----	----	more	more	more	Better condition
6	Th. Seed.	12	4	----	----	more	----	----	more	more	more	----------
7	Th. Seed.	24	none	----	----	----	----	----	----	----	----	No report
	Red. Mal.	24	none	more	----	----	----	----	----	----	----	Outstandingly better
8	Th. Seed.	20	8	more	----	none	----	----	less	more	more	Good condition
9	Th. Seed.	24	2	more	----	----	----	----	----	more	more	Bright condition
	Ribier	24	2	more	----	----	----	----	----	more	more	Bright condition
	Cardinal	24	2	more	----	----	----	----	----	more	more	Bright condition
10	Th. Seed.	23	none	more	----	----	none	----	----	----	----	Excellent, prem. price
	Th. Seed.	1	3	more	some	----	----	----	----	more	----	Excellent (retained)
11	Red. Mal.	24	2	more	----	less	----	----	----	more	more	----------
12	Th. Seed.	24	none	----	----	----	----	----	----	----	----	No report
13	Th. Seed.	24	4	----	less	same	----	----	more	----	----	No report
	Ribier	24	12	----	less	same	----	----	more	----	----	No report
	Italia	21	4	----	less	same	some	----	more	----	----	No report
14	Th. Seed.	24	6	more	----	none	less	none	slight	more	more	Outstanding
	Ribier	24	8	more	----	none	----	none	slight	more	more	Outstanding
	Italia	10	7	more	----	none	less	none	slight	more	more	Outstanding
15	Th. Seed.	20	4	----	----	----	----	----	----	----	----	Good condition
16	Th. Seed.	24	6	more	----	----	----	----	more	----	----	----------
17	Th. Seed.	24	6	more	----	none	----	----	more	more	more	Excellent
	Ribier	24	6	more	----	none	----	----	more	more	more	Excellent
18	Ribier	20	none	more	----	----	----	----	----	----	----	Better (exported)
19	Tokay	24	4	more	----	none	----	----	more	more	more	Excellent condition
20	Tokay	23	1	----	----	----	----	----	----	----	----	No report
	Tokay	1	2	----	----	----	----	----	----	----	----	Excellent (retained)
21	Tokay	12	----	----	----	----	----	----	----	----	----	No report
22	Emperor	40	----	----	----	----	----	----	----	----	----	No report
23	Emperor	36	----	----	----	----	----	----	----	----	----	No report
24	Emperor	36	8	more	----	----	----	----	----	more	more	Brighter and better
	Total	803										