

Vegetable Production & Marketing



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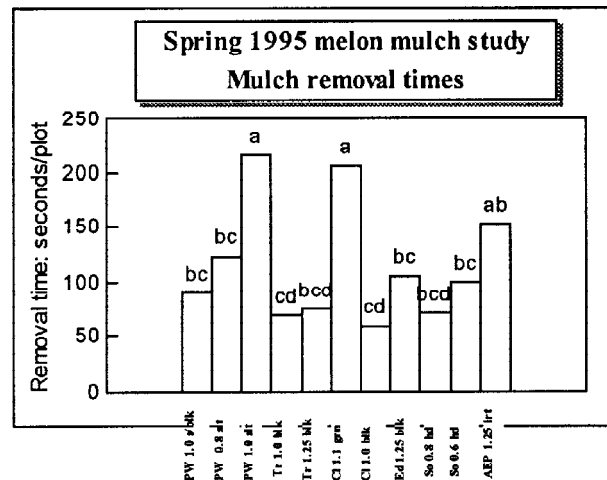
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Major Differences Observed in Plastic Mulch Removal

*Lynn Brandenberger & Bob Wiedenfeld, Extension Horticulturists
Texas A&M Research and Extension Center, Weslaco*

This spring's melon mulch study included eleven different plastic mulches along with two organic type mulches and a bare soil comparison. The spring melon crop has long since been harvested, but a second fall crop is being grown on the same mulches that were installed back in December of 1994. A major aspect of this field study has been the durability of the different plastic mulches; just how well do particular plastic films stand up to our demanding South Texas conditions?

Three replications of this study had the plastic mulches removed in late July. Data was recorded for the removal time, in seconds, for each plot. There were significant differences (see figure) among the different plastic mulches in the study regarding removal times, with average times ranging from a low of 59 seconds up to a high of 216 seconds for a 50-foot-long plot. This would indicate that growers should give consideration to how these mulches performed regarding



Bars with the same letter are not statistically different. PW 1.0=Poly West 1 mil silver on black, PW 0.8 slt=Poly West .8 mil selective low thermic, PW 1.0 slt=Poly West 1 mil selective low thermic, Tr 1.0 blk=Tredegar 1.0 mil black embossed, Tr 1.25 blk=Tredegar 1.25 mil black embossed, Cl 1.1 grn=Climagro 1.1 mil green, Cl 1.0 blk=Climagro 1 mil black embossed, Ed 1.25 blk=Edison 1.25 mil black embossed, So 0.8 hd=Sonoco .8 mil high density black embossed, So 0.6 hd=Sonoco .6 mil high density black embossed, AEP 1.25 irt=AEP 1.25 mil I.R.T. film

APPEARING WITHIN . . .

- ◆ Major Differences in Plastic Mulch Removal
- ◆ Dairy Manure Use on Cantaloupes
- ◆ Vegetables Postharvest Systems: Vegetable Quality and Grading
- ◆ Upcoming Events

removal, since more time spent removing them will result in more expense to a grower.

The complete report on this study is now available. If you are interested in learning more about this study and what was discovered, contact either Lynn Brandenberger or Bob Wiedenfeld at the Texas A&M Research and Extension Center, 2401 East Highway 83, Weslaco, Texas 78596.

Dairy Manure Use on Cantaloupes

Dr. Nancy Rose, Extension Horticulturist
Texas A&M Research and Extension Center, Stephenville

This experiment was conducted on a sandy loam soil in Erath County. Dairy lot scrapings and dairy manure compost were used on a dryland cantaloupe crop. Manure and compost were spread by hand and tilled in about one week before seeding. Raised beds were formed about 3 inches high. On April 14, 'Caravelle' cantaloupes were seeded about 2 inches apart in 2 beds which were 4 feet apart and 10 feet from the next bed. Plants were fertilized with 70 lbs/A 16-20-0 broadcast over beds on May 20. The only pest controls used were Poast™ for Bermuda grass control on May 27 and Adios™ for cucumber beetles on June 3.

Although the differences in emergence between the treatments were not significant, the trend was towards faster and more emergence with the organic treat-

ments. This is probably a result of increased soil water-holding capacity and decreased soil crusting from the addition of the organic materials.

The yields (but not the percentage of culls) were significantly different, using Duncan's analysis (marketable yield included all melons sized 18/bushel and larger). Although overall yields were low, probably due to lack of irrigation and weed competition, these results indicate that, under these conditions, the addition of either of these organic materials at the rates tested tended to increase yields.

A drip-irrigated fall crop of broccoli has been planted. We plan to continue this research for at least 3 years in the same plots.

Seedling Emergence

		Weeks after seeding		
		1	2	3
Manure (lot scrapings)	10 T/A	1 ab*	20 ab	27 ab
Compost	40 T/A	3 ab	26 ab	27 ab
Compost	10 T/A	2 ab	23 ab	29 ab
Compost	20 T/A	0 b	28 ab	31 ab
No compost or manure		2 ab	16 b	23 b

Cantaloupe Yields

		Marketable Yield (lbs/A)	Total Yield (lbs/A)	Percent Culls
Manure (lot scrapings)	10 T/A	8,568 a*	11,544 ab	11.3
Compost	40 T/A	8,010 ab	13,032 a	11.2
Compost	10 T/A	6,147 ab	9,419 ab	6.1
Compost	20 T/A	3,645 ab	5,913 ab	9.9
No compost or manure		2,591 c	3,571 b	13.4

* Treatments sharing a letter in common are not statistically at the 5% level of probability.

Vegetables Postharvest Systems: Vegetable Quality & Grading

James R. Hicks, Department of Fruit & Vegetable Science
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Pre-harvest and Maturity. Although postharvest is generally recognized as starting at the moment of harvest, we must also be aware of the many pre-harvest factors that have a bearing on postharvest results. The first and often most important decision that determines the postharvest performance of a crop is the choice of variety. It must be acceptable to your market. In many cases, different attributes are required for a processing variety and one that is going to be eaten fresh. In addition, different areas or segments of a population may differ in preference for a particular variety.

It is also essential to choose a variety that yields well and has the postharvest attributes necessary to withstand the handling between the field and the consumer. Too often growers are overly concerned about the total yield of a particular variety and do not look closely enough at the grade-out and handling characteristics. In the final analysis, it is the amount of high quality product that arrives and is sold at the market that determines profit.

Growing environment and nutritional status of the plant also play a role in postharvest responses. Too much nitrogen usually results in rapid growth, large cells, high moisture content (or low dry-weight), and a somewhat reduced storage life. Stress (lack of water or nutrients, disease or insect damage, extreme temperatures) will also have a negative impact on the storage life of a commodity. High calcium has been associated with extended storage life in some commodities.

Maturity is also a matter of concern. In many cases, there are good indicators for when a commodity is ready to harvest -- in others, there are none. Most fruit vegetables that are consumed at the ripe stage will continue to increase in eating quality (or at least there will be no decrease in quality) if left on the plant until ripe. However, at this point they usually have very little shelf or storage life left, and they are too soft to withstand the rigors of harvesting, handling, and transporting to market. Some fruits may be harvested based on time and/or distance to the market rather than on maximum quality. However, fruit harvested at an immature stage will generally be of very poor quality.

Many vegetables are harvested while they are physiologically immature. These are often harvested based

on size, so maturity is not really a problem unless harvest is delayed too long and they become over-mature. With most of the leaf crops (lettuce, cabbage, Napa, etc.), the quality and shelf life are better if harvested slightly immature rather than slightly over-mature. Once harvested, the crop is usually graded and packed. While a few crops are quite well suited for field packing, most of our commodities go through some type of packing facility. Packing lines should be arranged so that the flow of product is in one direction only. Quite often, product comes from the field to one end of the packing line, and the packed product is either placed in cold rooms or goes onto the loading dock at the other end. Lines may also be in a "U" or an "L" shape as long as they remain one-way operations.

There are four basic operations to all central packing sheds: these are (1) dumping -- getting the product out of the field container and onto the packing line; (2) cleaning -- usually a wash, but in some cases cleaning with dry brushes; (3) sorting -- discarding the fruit that is not marketable and separating the remainder into at least two groups based on definable quality attributes; and (4) packing -- placing the graded commodity into a shipping and/or marketing container.

During sorting, each grader should have a specifically designated area of responsibility. For example, usually the first person(s) on the line will only toss out the culls. This person has only one decision to make, either to leave the fruit on the line or toss it out. The fewer decisions made, the more efficient the worker. In order to have a uniform quality coming off the line, it is necessary to keep the fatigue factor as low as possible. A grader should be able to easily reach the entire section of line that is in his/her area. There should be good lighting, and the workers should have a stool or something to prop against and/or sit on. The grader must also have a good view of the entire surface of each fruit on the line. Rollers that rotate in the direction opposite to the movement of the line are usually considered best. The packing house manager should be able to control the speed of the line. Graders may not be as quick toward the end of a shift as they were at the beginning, or there may be fewer (or more) graders at different times.

In addition, because the US grading system is based on reduction grading (which means the primary grade

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Coming Events Mark Your Calendar!

HIGH PLAINS VEGETABLE CONFERENCE

Date: January 16, 1996
Location: Hereford, Texas
Time: 8:30 am - 4:00 pm
Contact: Dr. Roland Roberts,
Extension Vegetable Specialist
(806) 746-6101

CENTRAL TEXAS VEGETABLE CONFERENCE & MELON PRODUCTION SHORT COURSE

Date: January 18, 1996
Location: DeLeon, Texas
Time: 8:00 am - 3:30 pm
Contact: Bob Whitney
Comanche County Extension Agent
(915) 356-2539

RIO GRANDE VALLEY HORTICULTURAL SOCIETY ANNUAL MEETING & 50TH ANNIVERSARY CELEBRATION

Date: January 23, 1996
Location: TAMU-AREC @ Weslaco
Time: 9:30 am - 11:30 am
Contact: Dr. Yin-Tung Wang
Research Horticulturist
(210) 968-5585

a rhythmic motion. The combination of these two factors means that the slower the belt goes, the more product discarded. By checking the culls and the top grade, a packing house manager should be able to determine if the line should be accelerated (salable product in the culls), slowed (lower grade product mixed in with the top grade), or left unchanged (both are within their set parameters).

The container should be sufficiently filled to prevent fruit from rubbing against each other or the sides of the container. Placing pads between the fruit and the container lid will usually tighten the pack and help prevent injury to the fruit. Care should be taken not to overfill the containers. Also, in order to take advantage of the inherent strength of the containers (fiberboard cartons), they should be stacked in columns with all corners aligned, especially in the bottom two or three tiers.

Because it is practically impossible to handle fragile produce without some damage, the above procedures will cause injuries -- how much depends on the care taken by the workers and how well the lines are padded and the drop minimized. Bruises incurred during grading are often quite obvious a few days later. Anyone grading vegetables should obtain a copy of the grades and standards for the commodities being handled. Even if there is no desire to mark a grade on the carton, these will provide a guideline for maintaining a consistent quality in the pack. Consistency and uniformity of size and color of fruit within a pack are also very important in creating a favorable buyer impression.

Resource: Peleg, Kalman. 1985. **Produce Handling Packing and Distribution**. The AVI Publishing Company.

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Vegetables Postharvest . . . (Continued from Page 3)

is not picked up and put on another belt), if the fruit quality coming from the field changes, the speed of the line would need to be adjusted. Much of the grading is done on a relative basis, which simply means that the grader sorts out or selects the most obvious first. There is also a tendency for developing

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