



UTAH TREE FRUIT SURVEY SUMMARY

PD: Marion Murray, Utah State University
Co-PD: Dr. Diane Alston, Utah State University

Title: Utah Tree Fruit IPM Implementation Survey

Summary:

The Utah tree fruit industry, because of its monetary value to the state and strong working relationships with Cooperative Extension, is a key focus of the Utah State University USU Extension IPM Program. Tree fruit growers in the state were surveyed in winter 2010 to determine pest management practices, in particular, IPM implementation. The survey was designed by USU Extension faculty, and carried out by the Utah office of the National Agriculture Statistics Service in Jan-March 2010. There were 382 growers in the sample. Response was obtained from 335 (87.7%). Some refused or said they no longer had fruit trees so the number of reports with data came to 282 (73.8%), representing 5,600 acres.

Growers were asked to identify their pest management practices, and 65% were conventional, 14% organic, and 21% were conventional growers using IPM. They were also asked general questions about urbanization around the farm, farm size, whether they are full or part-time growers, age, and number of years to retirement. Those results are shown in Figures 1-5.

Figure 1. Percentage of the land around fruit farms that is developed.

■ < 25% ■ 26 to 75% ■ > 75%

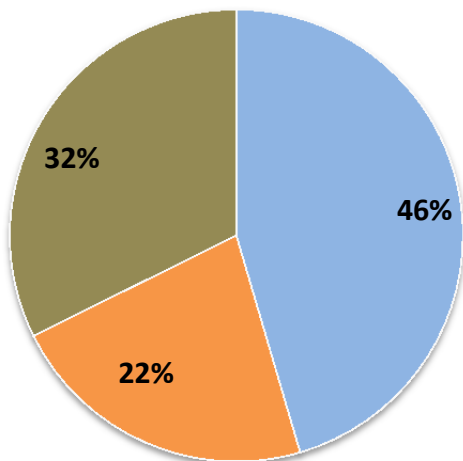


Figure 2. Utah growers' percentage of income that comes from the farm.

■ < 25% ■ 26 - 50% ■ 51 - 75% ■ 76 - 100%

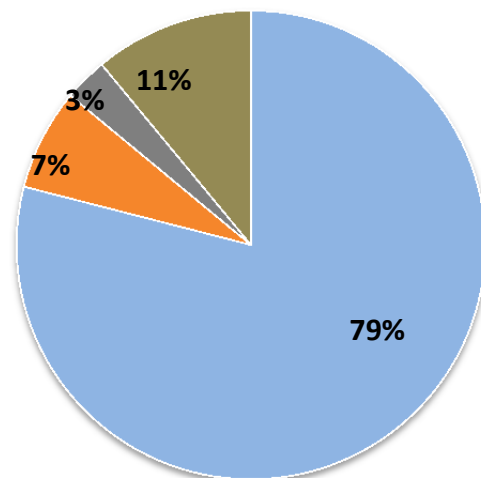


Figure 3. Percentage of growers that own various farm sizes.

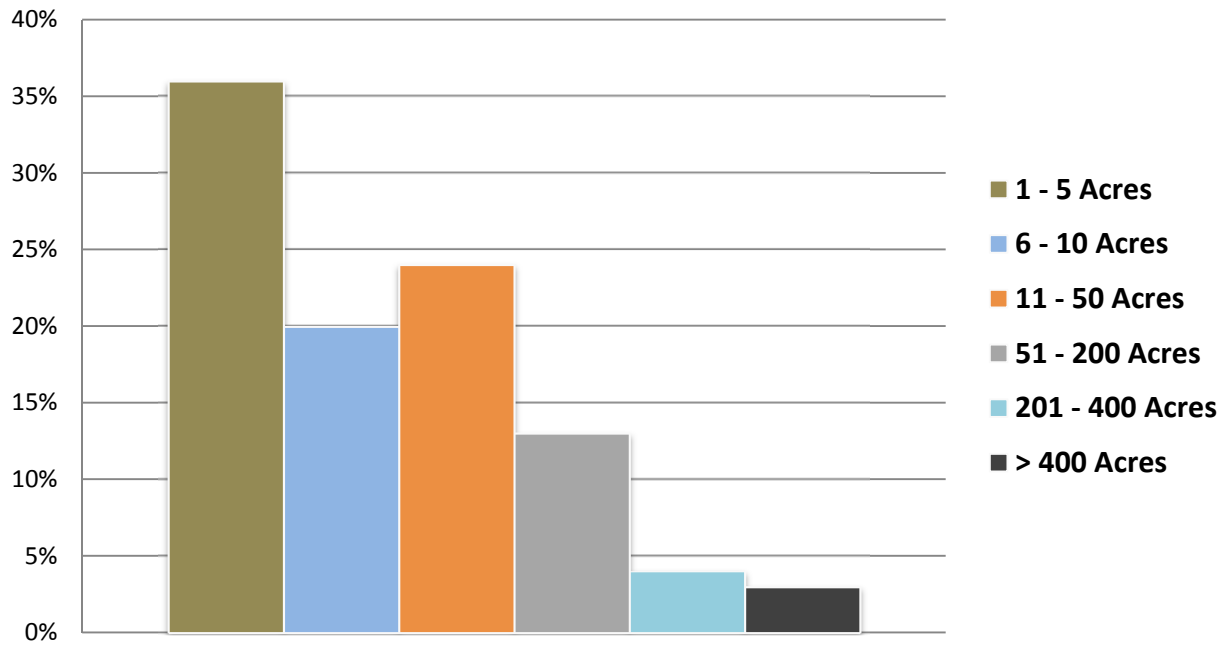


Figure 4. Age of primary operator on Utah fruit farms.

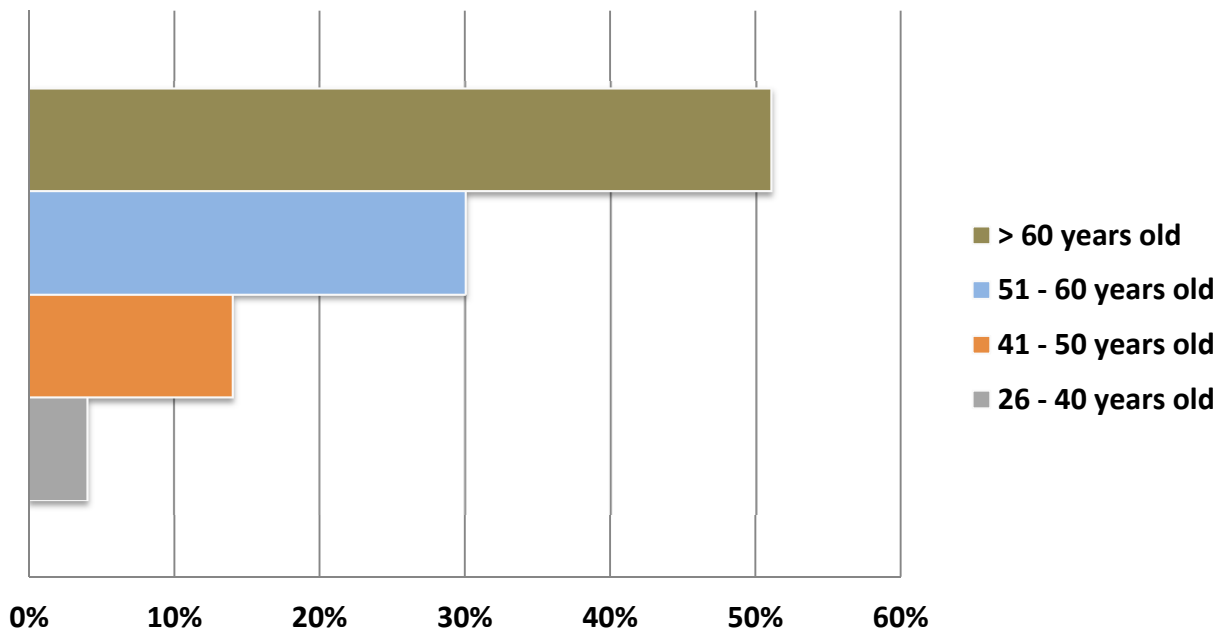
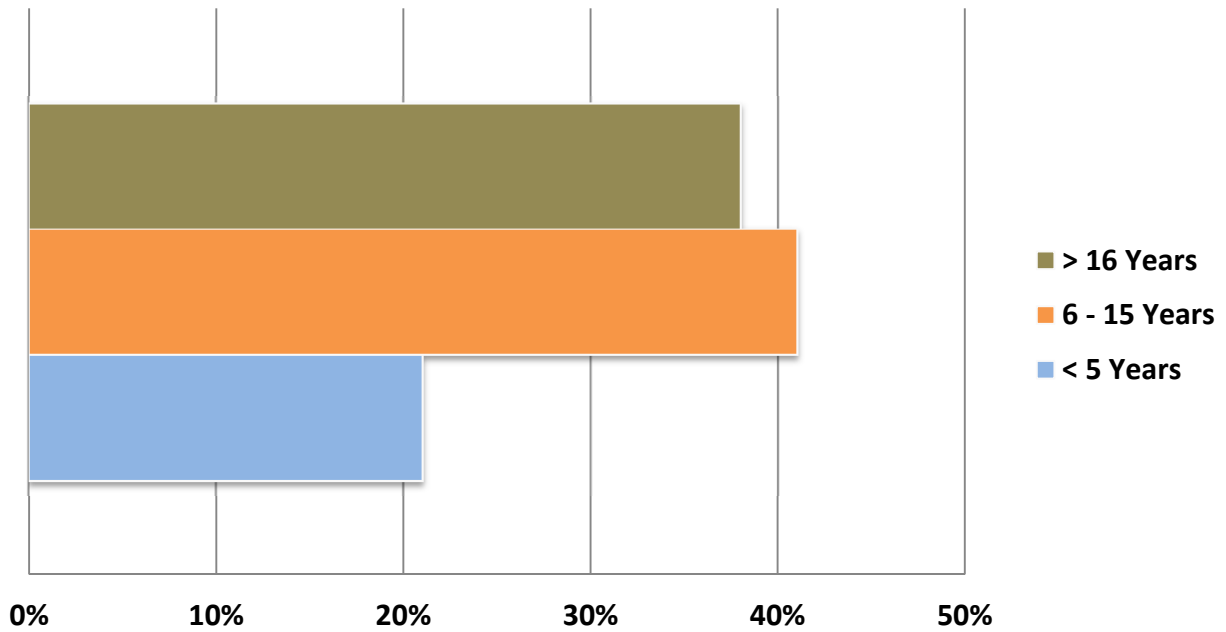


Figure 5. Years to retirement for Utah growers.



In the survey, growers reported on changes in pesticide use and use of IPM practices (Tables 1 and 2) and we used the results of the farm demographics to make comparisons of these factors. Figure 6 shows a breakdown of IPM practices among production types.

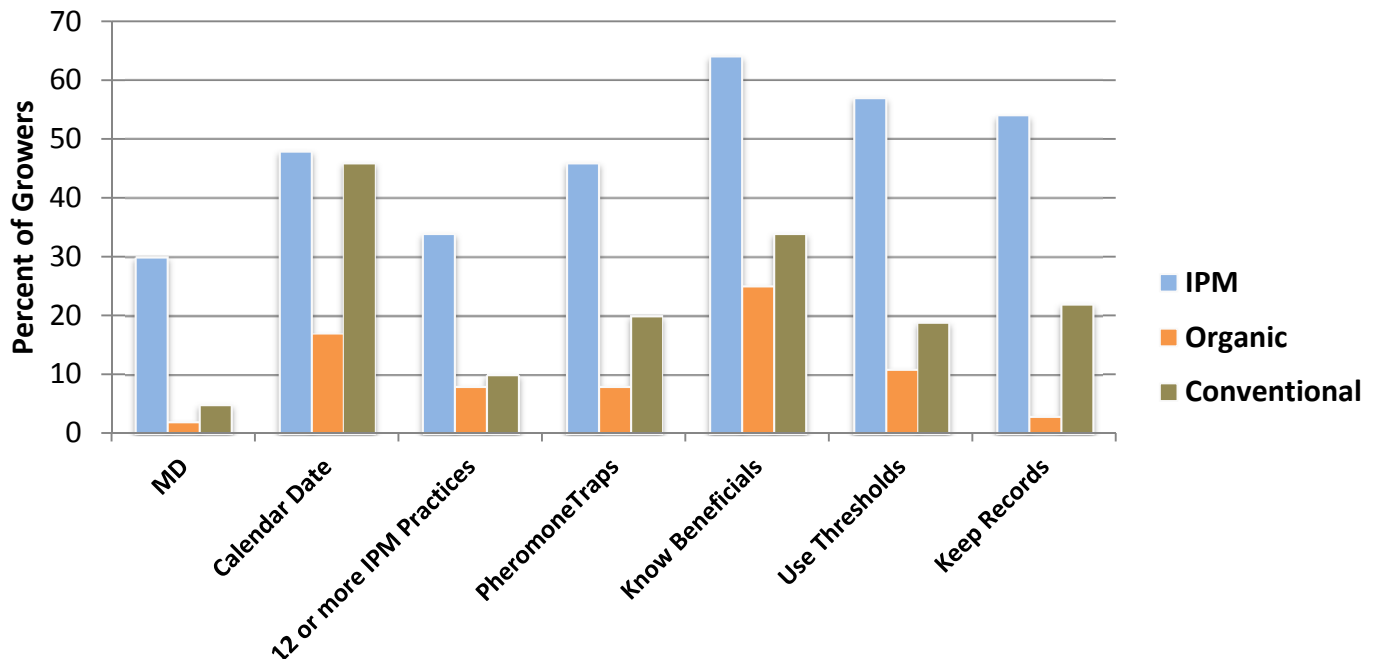
Table 1. Change in Pesticide Use in Last 5 Years (# Growers)

Crop	Unchanged	Increased	Decreased	Total
Apples	82	34	41	157
Pears	38	17	17	72
Peaches/nectarines	73	30	35	138
Tart Cherry	13	12	9	34
Sweet Cherry	36	23	8	67
Apricot	43	9	10	62
Total	285	125	120	530

Table 2. Number of growers using certain IPM practices by intensity over the last 3 – 5 years.

Pest Management Practice	High Use	Moderate Use	Low Use	Total
Pheromone trap to monitor throughout the season	20	21	26	67
Cherry fruit fly yellow sticky trap	15	20	20	55
Weekly pest monitoring	78	66	23	167
When pest monitoring, also identify beneficials	28	53	26	107
Send pest samples to Utah Plant Pest Diagnostic Lab	0	7	38	45
Maintain permanent written pest monitoring records	28	25	19	72
Insect or disease degree day models	14	12	20	46
Pest thresholds to determine whether to treat	23	32	18	73
Practice alternate row spraying	19	19	22	60
Rotate pesticide chemical classes to prevent resistance	48	50	17	115
Remove apple bins from orchard	46	12	12	70
Prune diseased wood	131	47	15	193
Avoid mowing or herbicides when mite densities are high	33	28	21	82
Plant ground covers or edge plantings to promote beneficials	20	33	26	79
Release insect biological controls	10	17	34	61
Calibrate sprayers	58	44	13	115
Bird/bat boxes to help manage rodents or insect pests	11	14	35	60

Figure 6. Percentage of growers who labeled themselves IPM, Organic, or Conventional, that perform certain IPM practices.



Farm Size

We found that farm size has no effect on change in pesticide use over the last 5 years, nor on the use of organophosphates in general. More larger farms use mating disruption than smaller farms, implying a reduced amount of pesticide use.

Farmers' interest in IPM does not differ among farm size, but IPM practices do. More IPM practices are used on large farms, including intensive monitoring. Small and medium farm growers say that lack of knowledge prevents their use of a higher level of IPM. Most of these growers are also working a separate full-time job, and they report that they do not have time to dedicate to IPM practices or to learning about them. The perception that IPM costs less varies among farm size, with more large farms agreeing.

Farm Urbanization

The use of organic options including mating disruption and GF-120, and using a high level of IPM practices is not affected by farm urbanization.

Farm Income

There are slight differences among part time and full time growers in whether pesticide use has changed over the last 5 years. Full time growers have decreased their use while part time growers have remained unchanged. The use of organophosphates, however, is not different between full and part-time growers. More full time growers have switched to using mating disruption and GF-120 (organic option for western cherry fruit fly) than part-time growers.

More full time growers use more IPM practices than part-time growers. Most growers say they monitor at least every other week, but a greater percentage of full time growers monitor regularly than part time growers. Part-time and full-time growers are in agreement about their desire to learn more IPM and feel that lack of knowledge can be an impediment to IPM. Part-time growers and full-time growers show the same interest in using IPM.

Years Left in Production

Time left in farming has an effect on production practice. Most growers that are ready to retire use conventional practices, however, this group is the least likely to use organophosphates as compared to the youngest growers. Years left in retirement has no effect on general IPM practices, monitoring frequency, and use of mating disruption.

Insecticide Use

Respondents reported primarily unchanged pesticide use in the last 5 years, except for apple growers, where 26% reported decreased pesticide use, and 21% reported increased use. The group that reported the greatest pesticide reduction was the group that considers themselves IPM practitioners. Pesticide use among the organic group was essentially unchanged.

Growers that reported a decrease in pesticide use were larger farms, so this is most likely due to greater use of mating disruption. Those that reported an increase were smaller farms. The increase is not surprising with the removal of Guthion. Guthion, an organophosphate, has a 3-week residual, and a wide variety of chemicals have been registered in the last 5 years that all have shorter residuals (up to 2 weeks), but are lower in toxicity, thereby requiring more frequent sprays.

The more important question in pesticide use that we discovered was the increased use of selective products over pyrethroids, organophosphates, and carbamates. One example is that over 30% of growers reported using horticultural oil for pests like mites, aphids, and powdery mildew during the growing season.

Tree fruit growers in Utah were given a similar survey in 1996. We were able to compare growers' perception of IPM between the two surveys, and found a significant improvement in the way growers view IPM (Table 3). Years of training, demonstrations, field trials, and research has shown growers that IPM yields positive results.

Table 3. Comparison of grower opinion on using IPM in 1996 and in 2009, showing percentage of survey respondents for each impediment.

Perceived impediment	1996	2009
Lack of knowledge	94	62
Higher cost	100	23
Higher risk	98	8
Lower level of control	98	10
Difficult to use	87	27
Lower quantity of yield	78	4
Lower quality of yield	88	9
Not interested in using	49	22