

**JDA Final Report to IFDC of
Melon Fly Training –
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Executive Summary

In the 2008 season IFDC contracted with JDA to conduct melon fly training for farmers in Balkh, Jawzjan and Saripul provinces. This was done in partnership with the Ministry of Agriculture, Irrigation and Livestock's (MAIL) Plant Protection and Quarantine Department (PPQD) at the provincial level. In the last 3-4 years melon fly has become a serious pest in most parts of Afghanistan where melons are grown. It can cause crop losses as high as 90%, which leads to economic difficulty as many farmers rely on melons as a cash crop.

Using recommendations developed by FAO and MAIL PPQD, which were based on work done in 2007 by FAO, MAIL PPQD and JDA, JDA and MAIL PPQD trained 859 farmers in Balkh, Jawzjan and Saripul. JDA also partnered with Tearfund to train farmers in Jawzjan province, thus extending the impact of IFDC's funding. Apparently Tearfund had heard from farmers that to control melon fly an inordinate amount of pesticide sprays were needed. Tearfund staff, who had been trained by JDA, trained 150 farmers in Mingajik, Mardyan and Qush Tepa districts, to which they also distributed deltamethrin and backpack sprayers.

JDA's on-farm control demonstration plots generally had better control when compared to neighboring farmers' plots. This was often done using a less toxic pesticide, deltamethrin EC 1.5, compared to the other products neighboring farmers would use, such as dimethoate or malathion. In addition, less pesticide was used as there were fewer applications, which translates into savings for the farmer as well as less exposure to pesticide.

A survey of 47 farmers in the three provinces indicates that deltamethrin is being used by the majority of farmers interviewed. However, dimethoate was the second most mentioned insecticide used, and a significant number of farmers are still spraying more than once per week. A survey of 61 input dealers showed that dealers equally recommend deltamethrin, dimethoate and lambda cyhalothrin. These results indicate the need for more training of farmers and input dealers.

The following are recommendations to further improve farmers' control of melon fly:

1. Aggressively target input dealers with melon fly control recommendations.
2. Use radio to disseminate melon fly control information to farmers and input dealers.
3. Continue to hold training for farmers on melon fly control- train farmers district by district to "saturate" provinces with training.
4. Encourage bagging of melons, as bagged melons fetched a higher price according to farmers who practiced this in 2008.

There are also critical research needs that would help improve melon fly control in the future. Currently sprays are done on the assumption that melon fly is present. There is no known way to monitor the presence of melon fly, other than damage to fruit. It is not understood how the melon fly finds its' host. Sugar and protein based attractants have proved ineffective at attracting melon fly. Some type of trap would help farmers know whether they have melon fly or not. This would inform a decision on whether to spray.

GTZ in Uzbekistan may be holding a melon fly workshop in Tashkent in December 2008. They would invite experts having long-standing experience in melon fly management from countries where the melon fly is native (e.g., Iran, Turkey), as well as international experts. The director of MAIL PPQD, Mr. Ahmedi, should be invited to this and IFDC and FAO should consider helping with his travel costs. This would be an excellent opportunity for Afghanistan to benefit from the work others have done in melon fly.

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Introduction

2008 is the second year that JDA has been involved in melon fly (*Myiopardalis pardalina*) control in Balkh, Jawzjan and Saripul provinces. Using the recommendations from FAO and MAIL PPQD, JDA sought to train farmers and input dealers in these three northern provinces, where melons are a significant cash crop for farmers. The training content consisted of:

- Life cycle of melon fly
- Integrated control
 - Weekly sprays starting at apricot sized fruit stage- use deltamethrin 1.5% EC 1ml/L water (applied via a backpack sprayer); number of weeks determined by growing area (irrigated, semi-irrigated and dryland)
 - Field sanitation- removal and destruction of infested fruits
 - Bagging melons- possible for small plots; but cost becomes very high for large fields
- Pesticide use and safety

Educating input dealers was seen as critical in the overall strategy as they supply the majority of pesticides to farmers, and farmers often listen to the dealers' advice when faced with a pest problem. Therefore, JDA's first training event, held in Mazar, targeted input dealers. At the same time, education of farmers was seen as absolutely necessary as input dealers, even with training, cannot be counted on to recommend the right product to farmers. Farmer training started in May and went through August. A simple survey of farmers in each of the three provinces was conducted in July to assess what farmers were actually doing to control melon fly, what shopkeepers were recommending and what MAIL PPQD was doing to help farmers.

MAIL PPQD in each province provided training to farmers and did on-farm demonstration of melon fly control, which they then monitored to gauge effectiveness. For comparison they gathered data on melon control from a neighboring farmer. Data was collected from both areas on the type and frequency of pesticide sprays, and level of damage caused by melon fly (assessed through good and bad fruit counts in a 100m² area).

At the end of the season a wrap-up discussion was held that was attended by MAIL PPQD, farmers from each province and IFDC and JDA staff. This report describes the field results of JDA and PPQD's melon fly control, responses of farmers from the simple survey, records of workshops held and farmers trained and lastly recommendations to improve melon fly control.

Results - Field

JDA, with MAIL PPQD staff, trained 859 farmers in the three provinces of Balkh, Jawzjan and Saripul. This far exceeded JDA's goal of training 120 – 480 farmers. Thirteen agricultural input dealers were trained at the very beginning of the project. This was lower than JDA's target of 18 input dealers. MAIL PPQD and Extension staff recorded training 580 farmers, without JDA involvement. This training was accomplished with less funds than

anticipated. The original budget (cost reimbursable) was for about \$30,000, yet the work was accomplished for about \$22,000.

All farmers who worked with JDA and PPQD used Deltamethrin 1.5EC at the rate of 1ml/1L of water. Application was only 1 spray per week. Neighboring farmers used a variety of chemicals, and often sprayed more than once time per week, as noted. In general, the results below show that when the recommendations to control melon fly are followed (JDA/PPQD managed plots), control is more effective. In addition, less pesticide was applied, and deltamethrin, the recommended product, is safer than other farmer choices such as dimethoate or malathion. Many farmers are applying pesticide more than once per week, and the pesticide is typically something more toxic than deltamethrin. Dimethoate, a systemic insecticide that has a dermal LD₅₀ of 100 – 600mg/kg, is popular with farmers and is widely sold by input dealers.¹ Deltamethrin’s dermal LD₅₀ is greater than 2,000mg/kg. Of the possible ways farmers can be poisoned by pesticides, dermal exposure is the most likely as most farmers do not use personal protective equipment (PPE), and do not take into account weather conditions and thus spray when there is wind.

One problem noted by JDA during field visits is that farmers tend to neglect field sanitation, which results in perpetuating the infestation on their own land and neighbors’ land. This contrasts with the monitoring data (see Figure 11), which indicates that a majority of farmers are practicing field sanitation. This could be due to the small sample size (47) of farmers interviewed. However, if a farmer is renting land he has little incentive to do field sanitation as he does not know if he will be renting the same piece of land for the following season.

The below data is represented in table and then graph form. It compares JDA/PPQD managed plots with a neighboring farmer’s plot. What insecticide(s) the neighbor used and how often it was applied is described.

Balkh

Table 1. Comparison of % good fruit between JDA/PPQD managed plot and neighbor plot of farmer, Karmalik village, Dedadhi district, Balkh province.

Date	% good fruit	
	JDA Farmer	Neighbor
8-Jun	100	81
15-Jun	100	92
23-Jun	100	100
29-Jun	96	97
6-Jul	100	98
12-Jul	94	96
19-Jul	97	94
27-Jul	99	93
Season average	98.3	93.9

*Used deltamethrin 1x/week, except week of June 15 used 2x/week.

¹ LD₅₀ information: <http://extoxnet.orst.edu/ghindex.html>

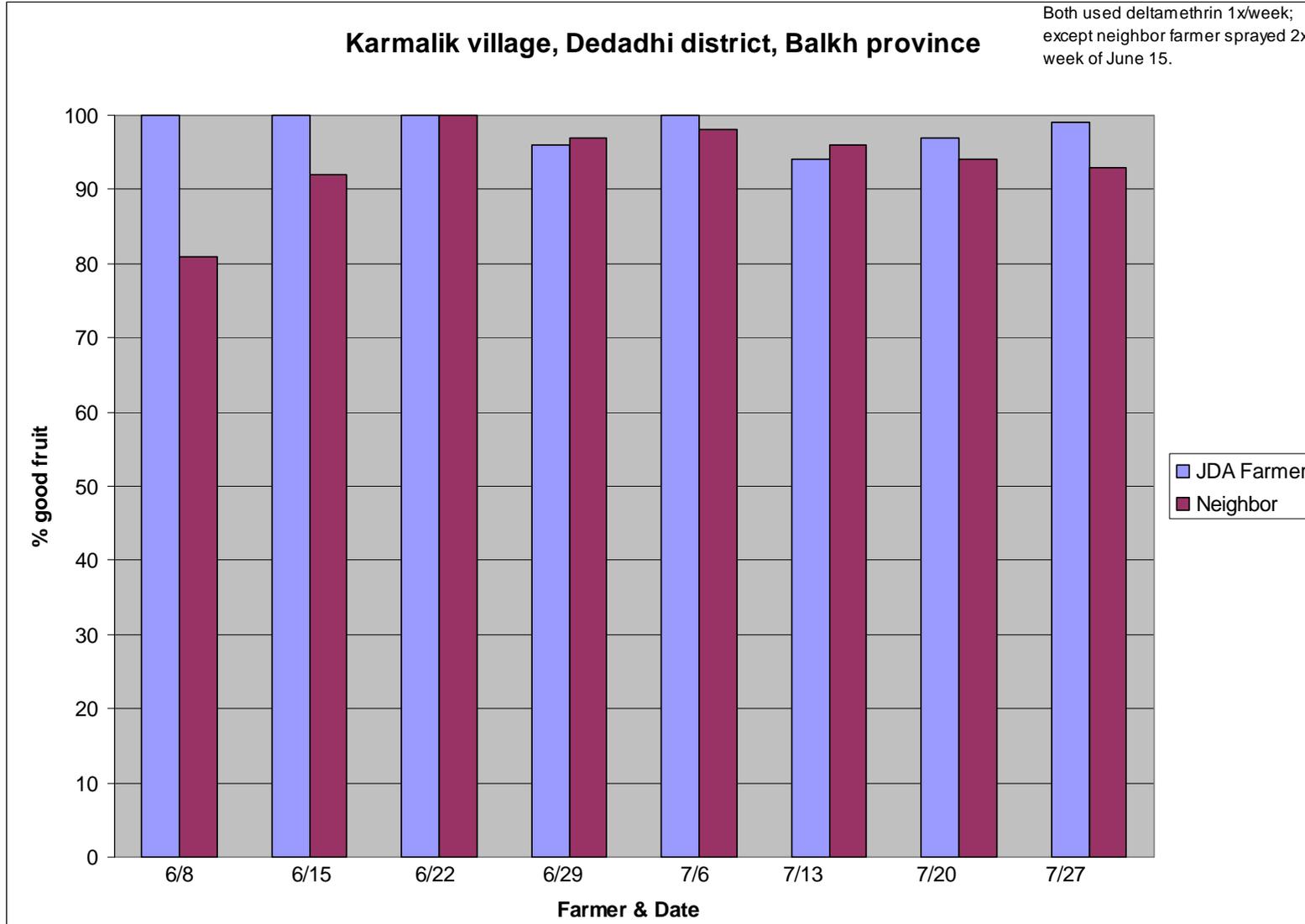


Figure 1. Comparison of % good fruit between JDA/PPQD managed plot and neighbor plot of farmer, Karmalik village, Dedadhi district, Balkh province.

Table 2. Comparison of % good fruit between JDA/PPQD managed plot and neighbor plot of farmer, Balkh village, Balkh district, Balkh province.

Date	% good fruit	
	JDA Farmer	Neighbor*
20-May	100	94
27-May	100	95
3-Jun	100	94
9-Jun	100	93
13-Jun	50	
20-Jun	83	
27-Jun	80	
4-Jul	75	
Season average	86	94

*farmer used malathion 3x/week, no data available June 13 – July 4.

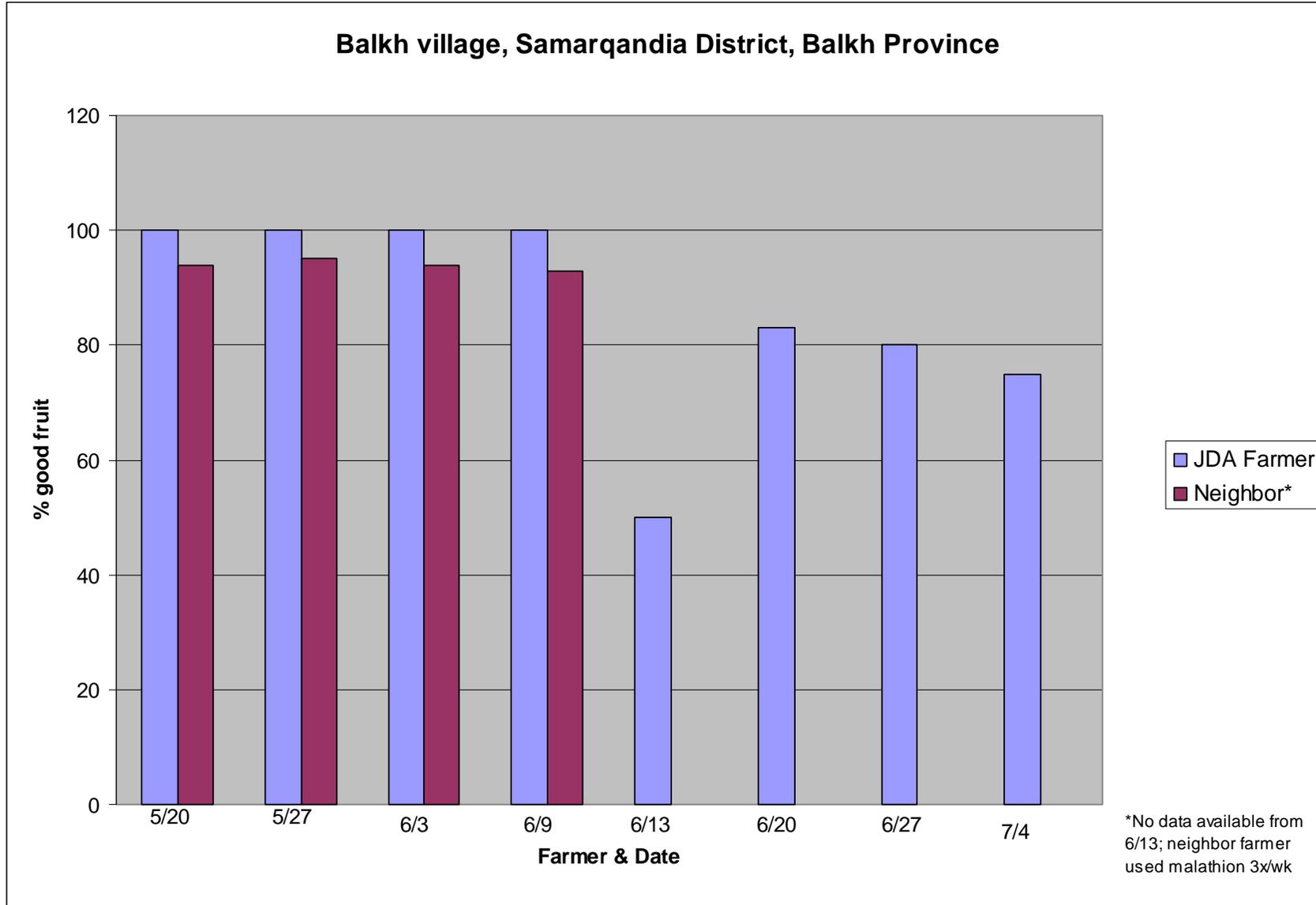


Figure 2. Comparison of % good fruit between JDA/PPQD managed plot and neighbor plot of farmer, Balkh village, Balkh district, Balkh province.

Jawzjan

Table 3. Comparison of % good fruit between JDA/PPQD managed plot and neighbor plot of farmer, Aymaq village, Khojadoko district, Jawzjan province.

Date	% good fruit	
	JDA Farmer	Neighbor*
20-May	100	94
27-May	100	75
3-Jun	100	78
9-Jun	100	83
2-Jul	100	100
8-Jul	100	100
15-Jul	100	100
22-Jul	100	100
Season average	100	91.3

*6/8-29 neighbor farmer used dimethoate or lambda cyhalothrin 2x/k; 7/2-22 used deltamethrin 1x/week

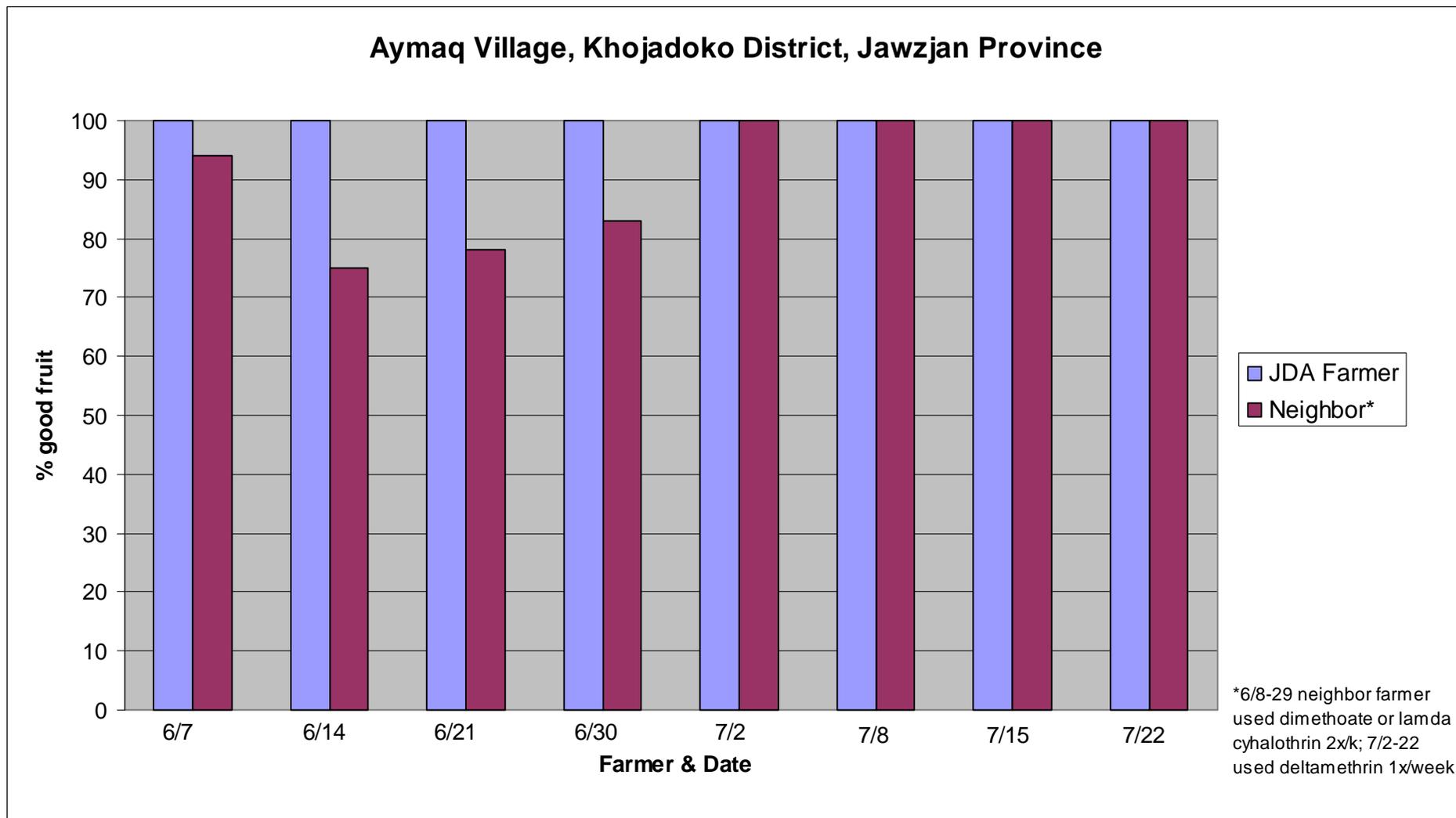


Figure 3. Comparison of % good fruit between JDA/PPQD managed plot and neighbor plot of farmer, Aymaq village, Khojadoko district, Jawzjan province.

Table 4. Comparison of % good fruit between JDA/PPQD managed plot and neighbor plot of farmer, Yandarigh village, Aqcha district, Jawzjan province.

Date	% good fruit	
	JDA Farmer	Neighbor*
7-Jun	96	74
11-Jun	100	82
18-Jun	100	91
25-Jun	100	95
1-Jul	100	91
12-Jul	100	94
22-Jul	100	95
30-Jul	100	100
Season average	99.5	90.3

*neighbor farmer used dimethoate 3 - 4x/wk 6/7-18; used deltamethrin 1x/wk 6/25 - 7/1, 2x/wk 7/12; dimethoate 1x/wk 7/22 - 7/30

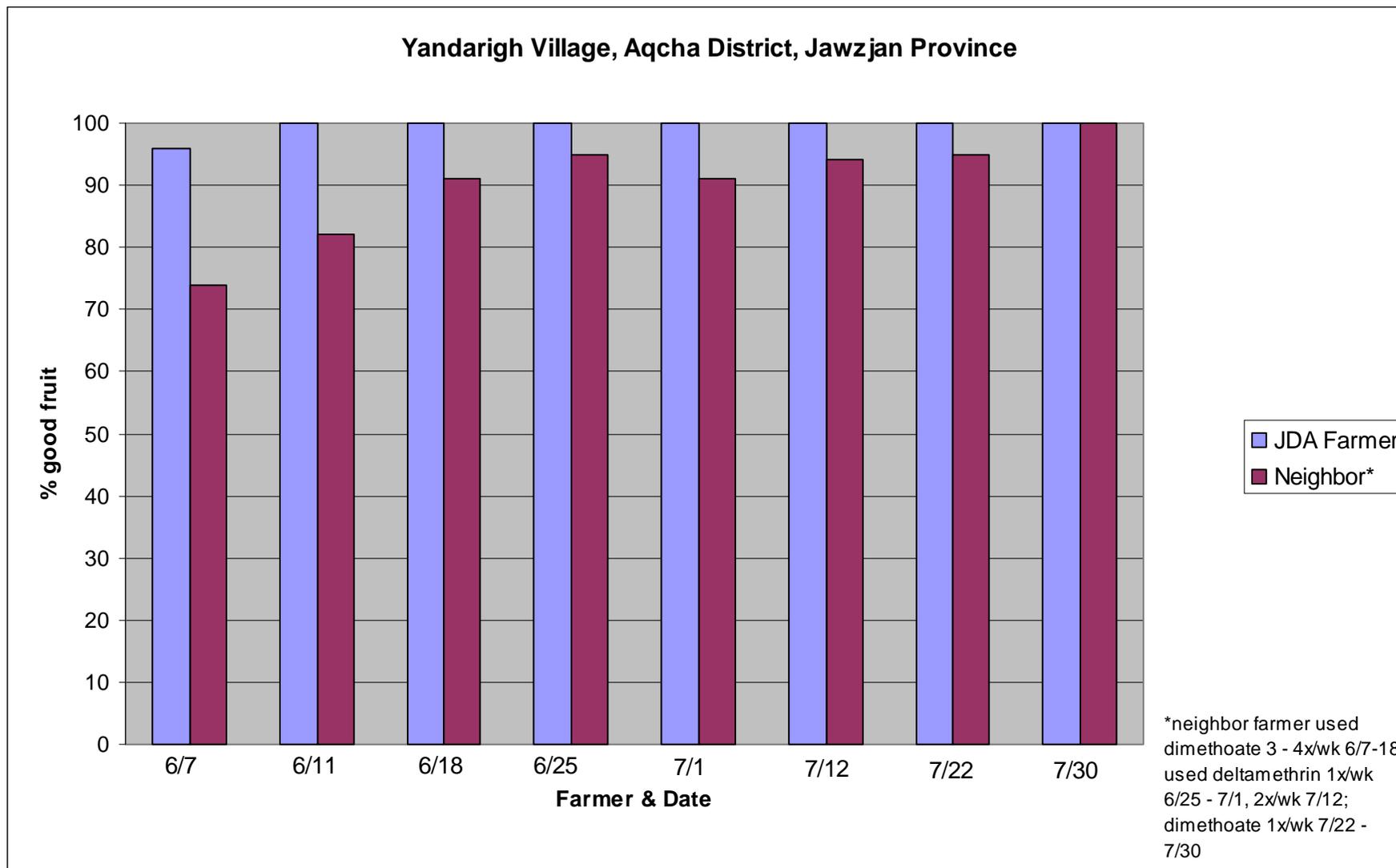


Figure 4. Comparison of % good fruit between JDA/PPQD managed plot and neighbor plot of farmer, Yandarigh village, Aqcha district, Jawzjan province.

Table 5. Comparison of % good fruit between JDA/PPQD managed plot and neighbor plot of farmer, Sancez village, Faizabad district, Jawzjan province.

Date	% good fruit	
	JDA Farmer	Neighbor*
4-Aug	-	91
11-Aug	91	86
18-Aug	90	100
24-Aug	100	100
Season average	93.7	95.3

*neighbor farmer used deltamethrin 2x/week 1st week; used deltamethrin 1x/week 2nd - 4th weeks

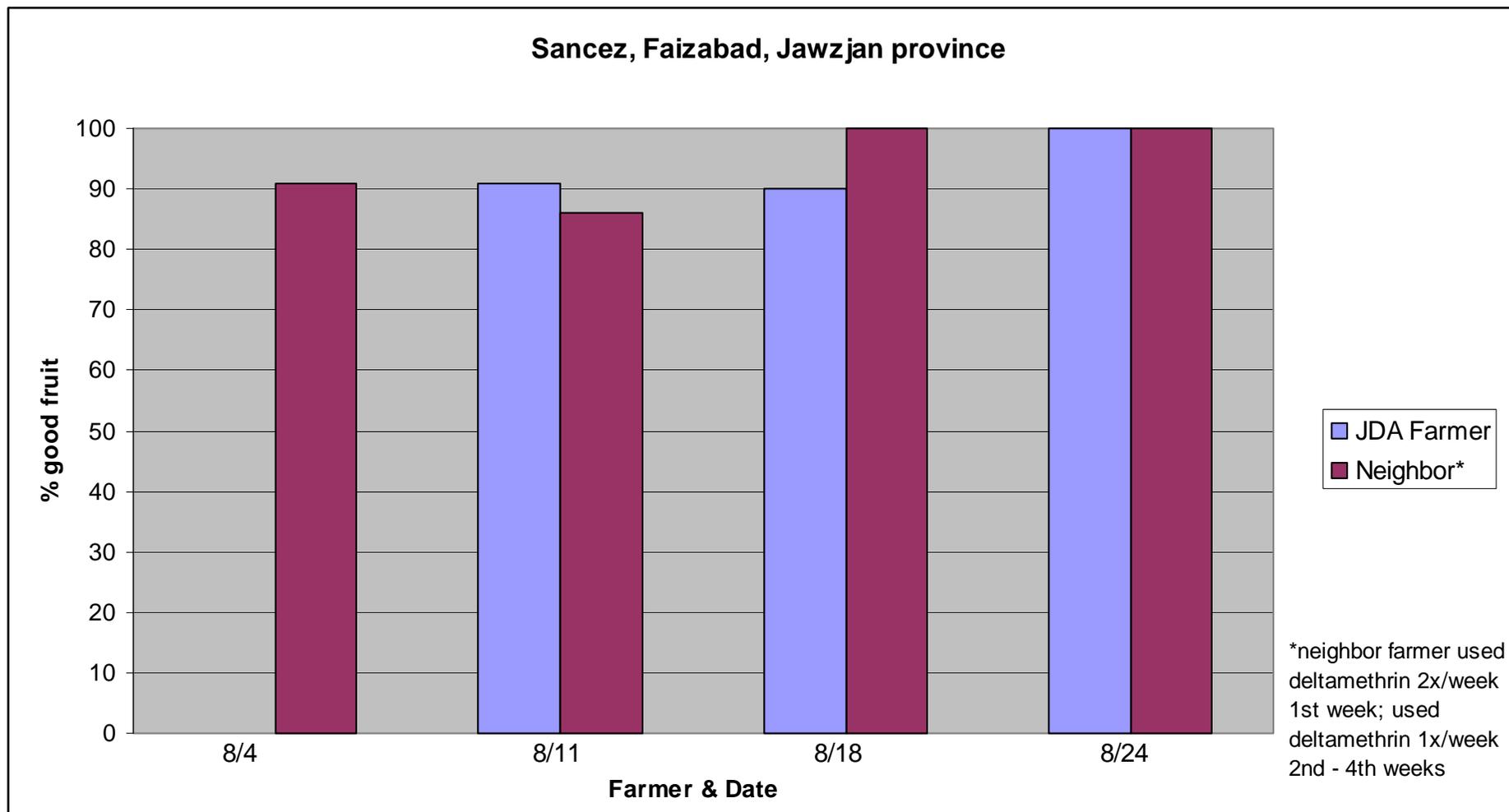


Figure 5. Comparison of % good fruit between JDA/PPQD managed plot and neighbor plot of farmer, Sancez village, Faizabad district, Jawzjan province.

Saripul

Table 6. Comparison of % good fruit between JDA/PPQD managed plot and neighbor plot of farmer, Sayad district, Saripul province.

Date	% good fruit	
	JDA Farmer	Neighbor*
14-Jun	100	64
21-Jun	100	64
24-Jun	100	71
29-Jun	100	73
Season average	100	68

*neighbor farmer used dimethoate 2x/week over 2 weeks; used deltamethrin 1x/week in 3rd & 4th week

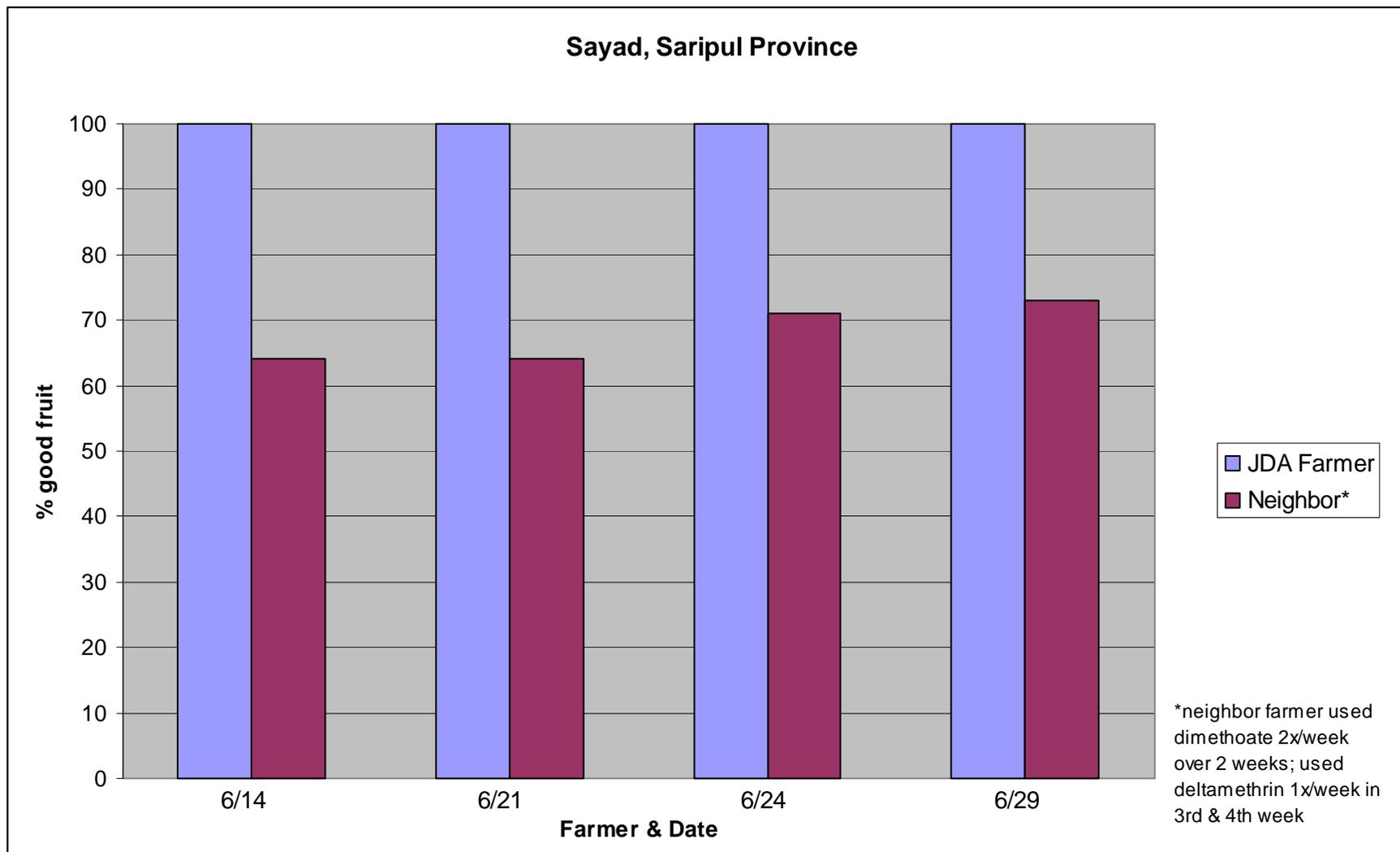


Figure 6. Comparison of % good fruit between JDA/PPQD managed plot and neighbor plot of farmer, Sayad district, Saripul province.

Table 7. Comparison of % good fruit between JDA/PPQD managed plot and neighbor plot of farmer, Taqab village, Sayad district, Saripul province.

Date	% good fruit	
	JDA Farmer	Neighbor*
9-Aug	100	99
19-Aug	100	99
22-Aug	100	98
Season average	100	98.7

*neighbor farmer used deltamethrin 1x/week

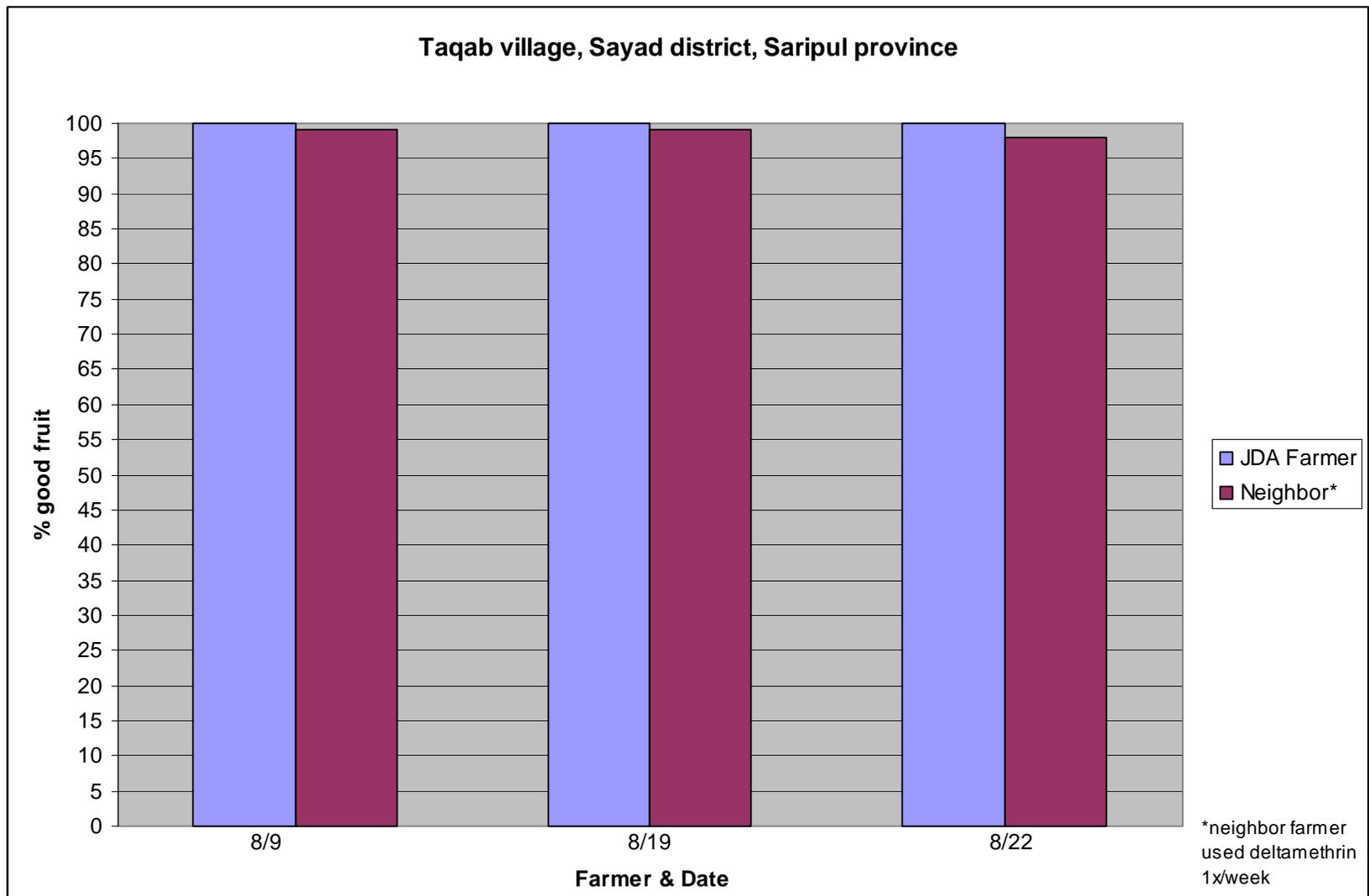


Figure 7. Comparison of % good fruit between JDA/PPQD managed plot and neighbor plot of farmer, Taqab village, Sayad district, Saripul province.

Table 8. Comparison of % good fruit between JDA/PPQD managed plot and neighbor plot of farmer, Qaragho village, Saripul Ctr, Saripul province.

Date	% good fruit	
	JDA Farmer	Neighbor*
14-Jun	100	60
21-Jun	100	100
28-Jun	100	94
5-Jul	98	95
12-Jul	97	86
19-Jul	100	92
Season average	99.2	87.8

*neighbor farmer used dimethoate 2x/wk 6/14-21; used deltamethrin 1x/wk 6/28-7/5, 2x/wk 7/12, 1x/wk 7/19

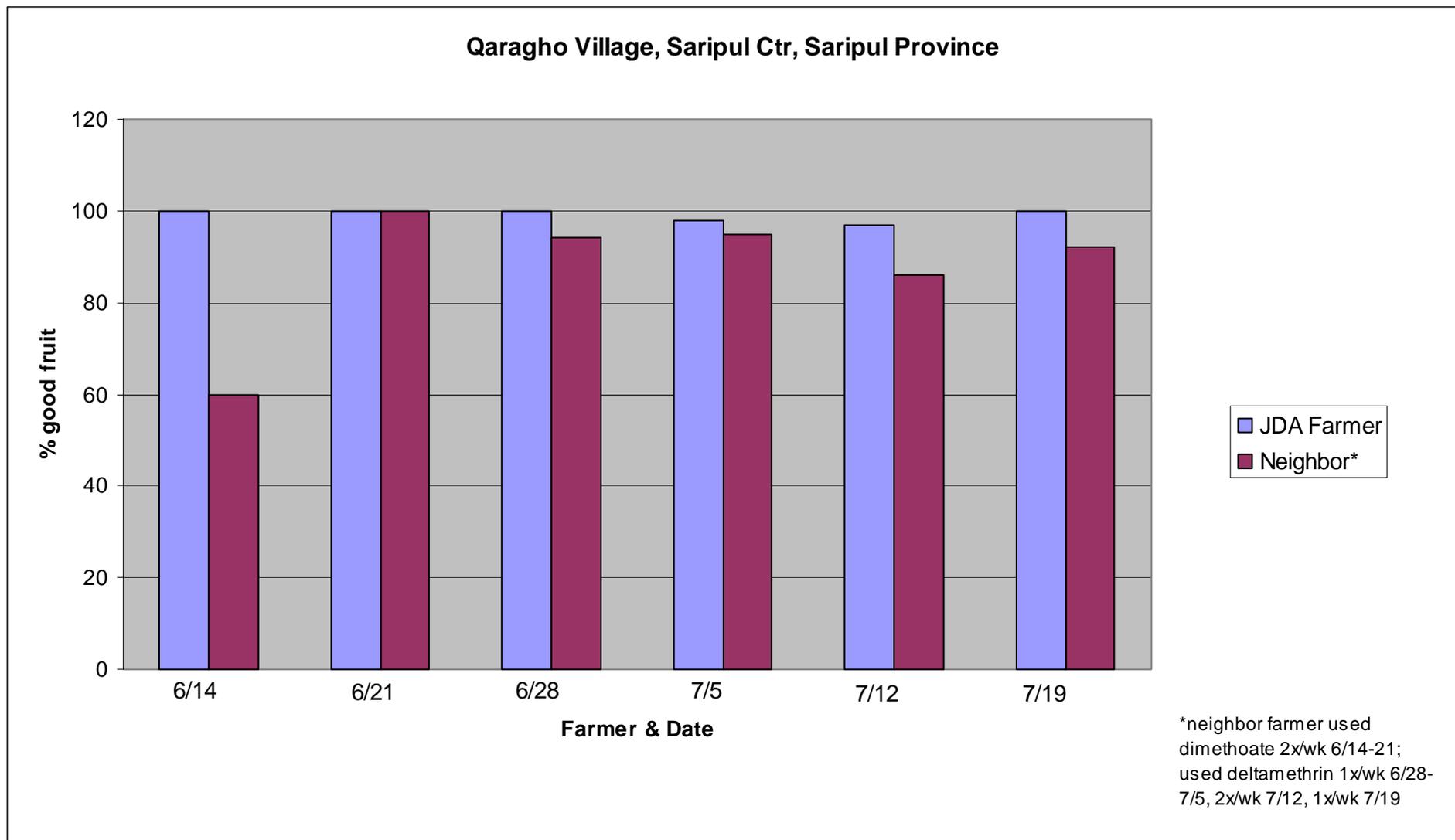


Figure 8. Comparison of % good fruit between JDA/PPQD managed plot and neighbor plot of farmer, Qaragho village, Saripul Ctr, Saripul province.

Results – Monitoring

JDA's monitoring of 47 melon farmers in Balkh, Jawzjan and Saripul indicates that deltamethrin, the recommended insecticide for melon fly, is used by the majority (54%) of these farmers (see Figure 9). Dimethoate was the second most mentioned insecticide, with 17% of farmers using this product. Other insecticides used by farmers to a lesser degree are malathion, carbaryl, trichlorfon, diazinon and lambda cyhalothrin.

Most of these farmers are following the recommendation for the frequency of sprays. 46% of farmers said they spray once per week, but a significant number, 36%, said they spray two times per week (see Figure 10). Most farmers also claim to be following the recommendation to do mechanical control, with 89% saying they use mechanical control and 11% not using mechanical control (see Figure 11). In terms of MAIL PPQD assisting with melon fly control (this could mean free distribution of deltamethrin under a MAIL program, or advice about how to control melon fly), most farmers (89%) indicated that MAIL is helping them (see Figure 12).

Of 61 agricultural input dealers, deltamethrin, dimethoate and lambda cyhalothrin were recommended about equally (23-24% of dealers) for melon fly control. 15% of dealers recommended carbaryl, 10% malathion, 3% trichlorfon and 2% diazinon (see Figure 13).

The following pie charts detail farmers' and input dealers' responses.

Figure 9. Insecticides farmers use to control melon fly.

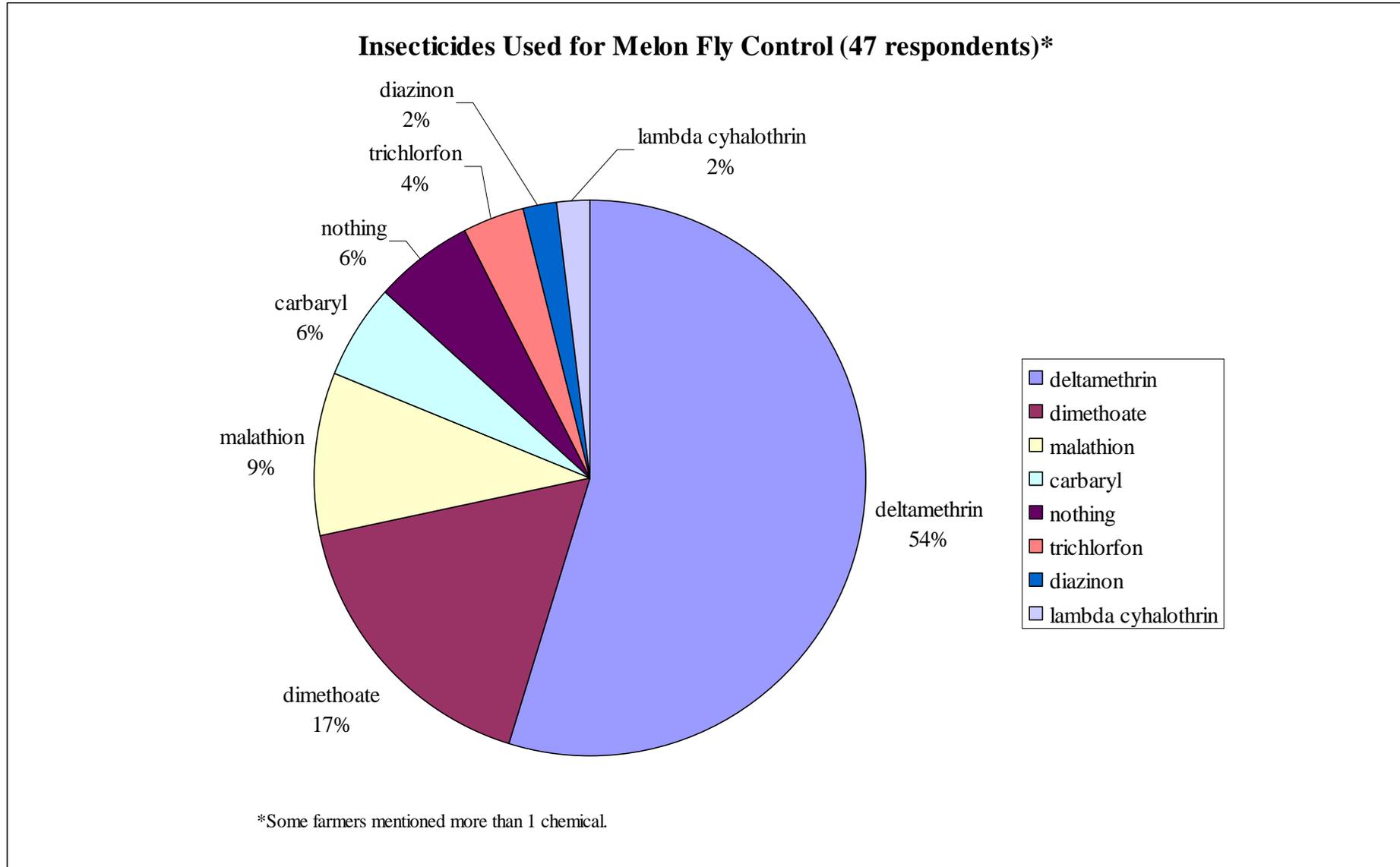


Figure 10. Frequency of insecticides sprays farmers use to control melon fly.

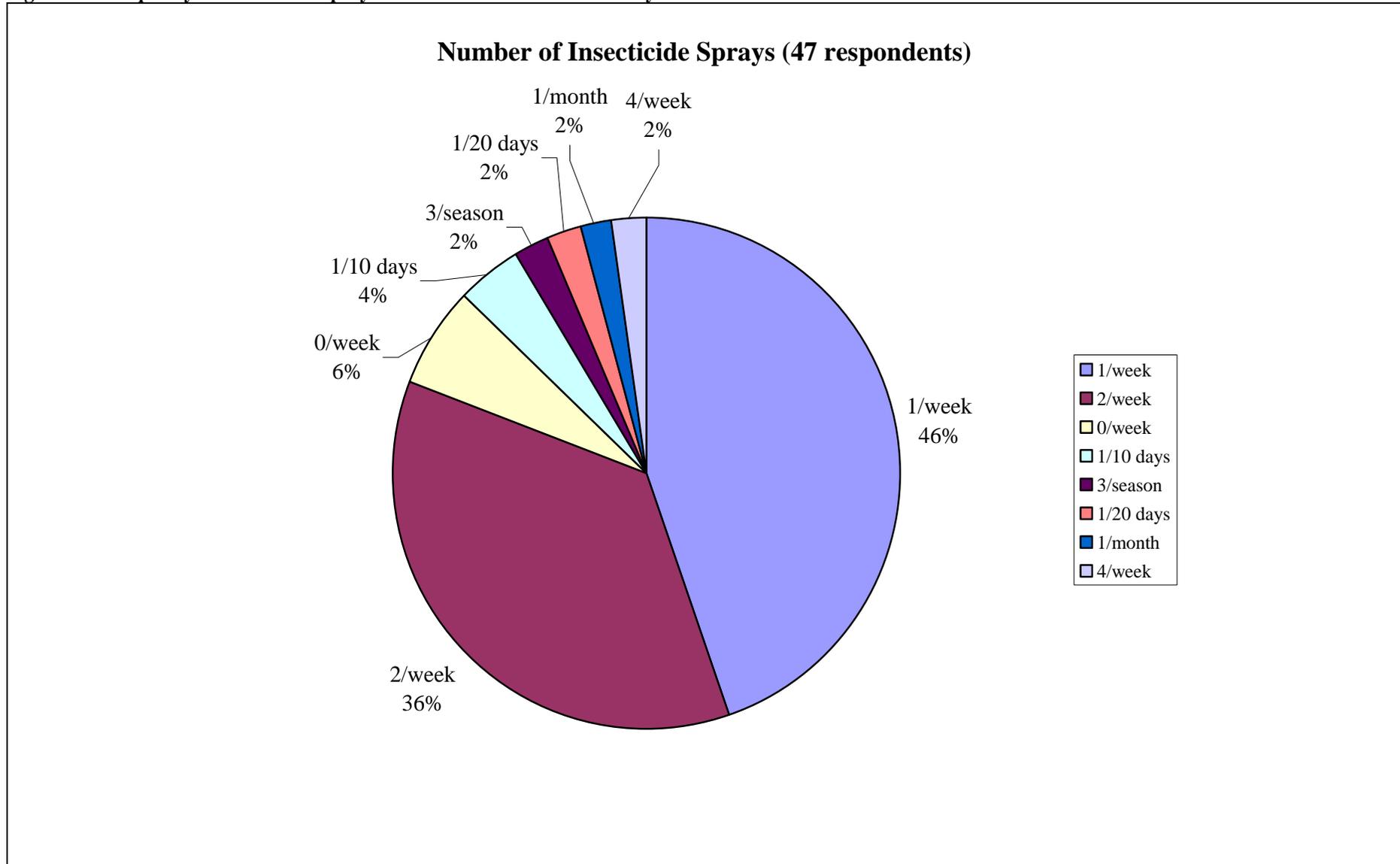


Figure 11. Farmers using mechanical control.

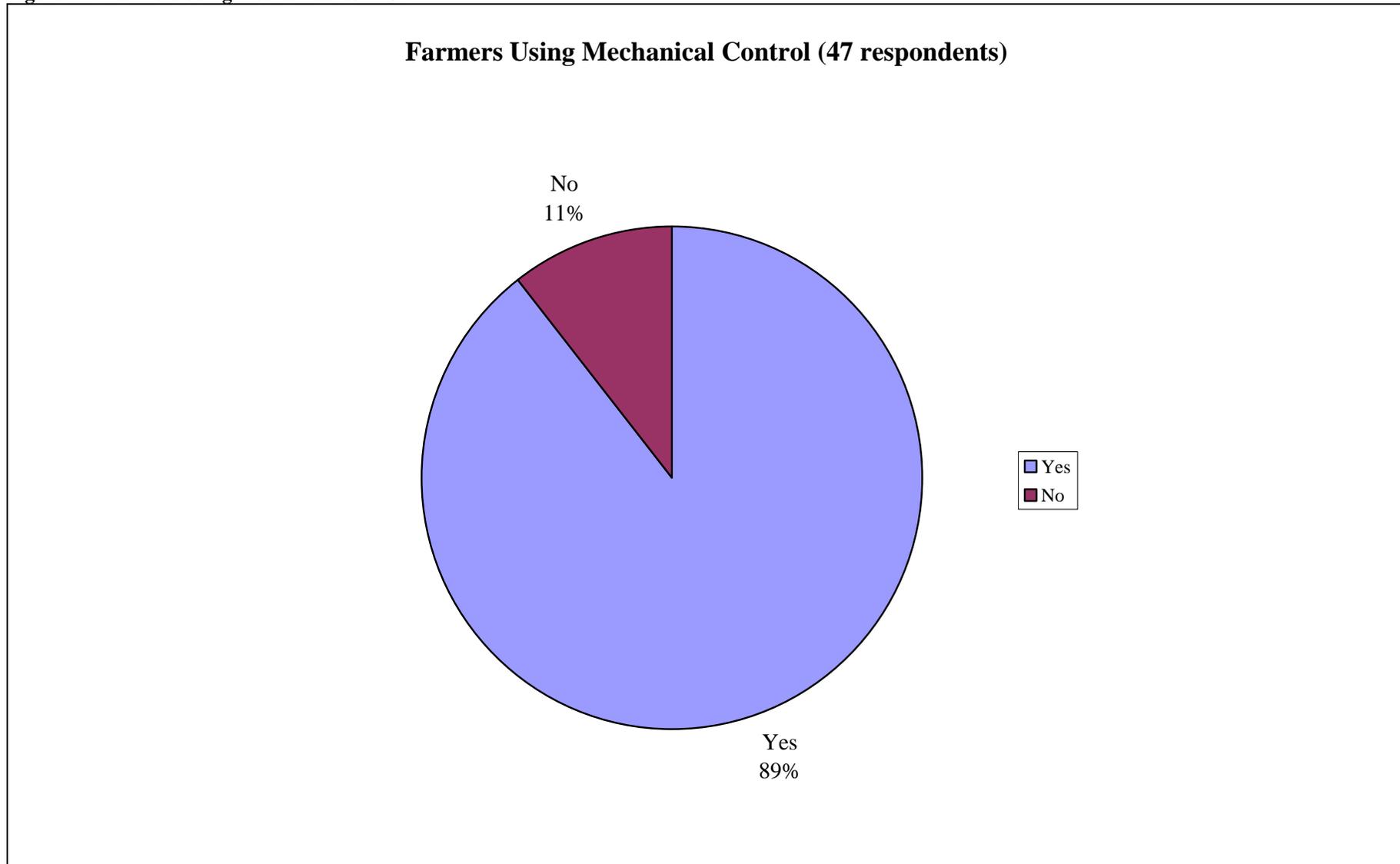


Figure 12. Assistance of MAIL PPQD staff to farmers for melon fly control.

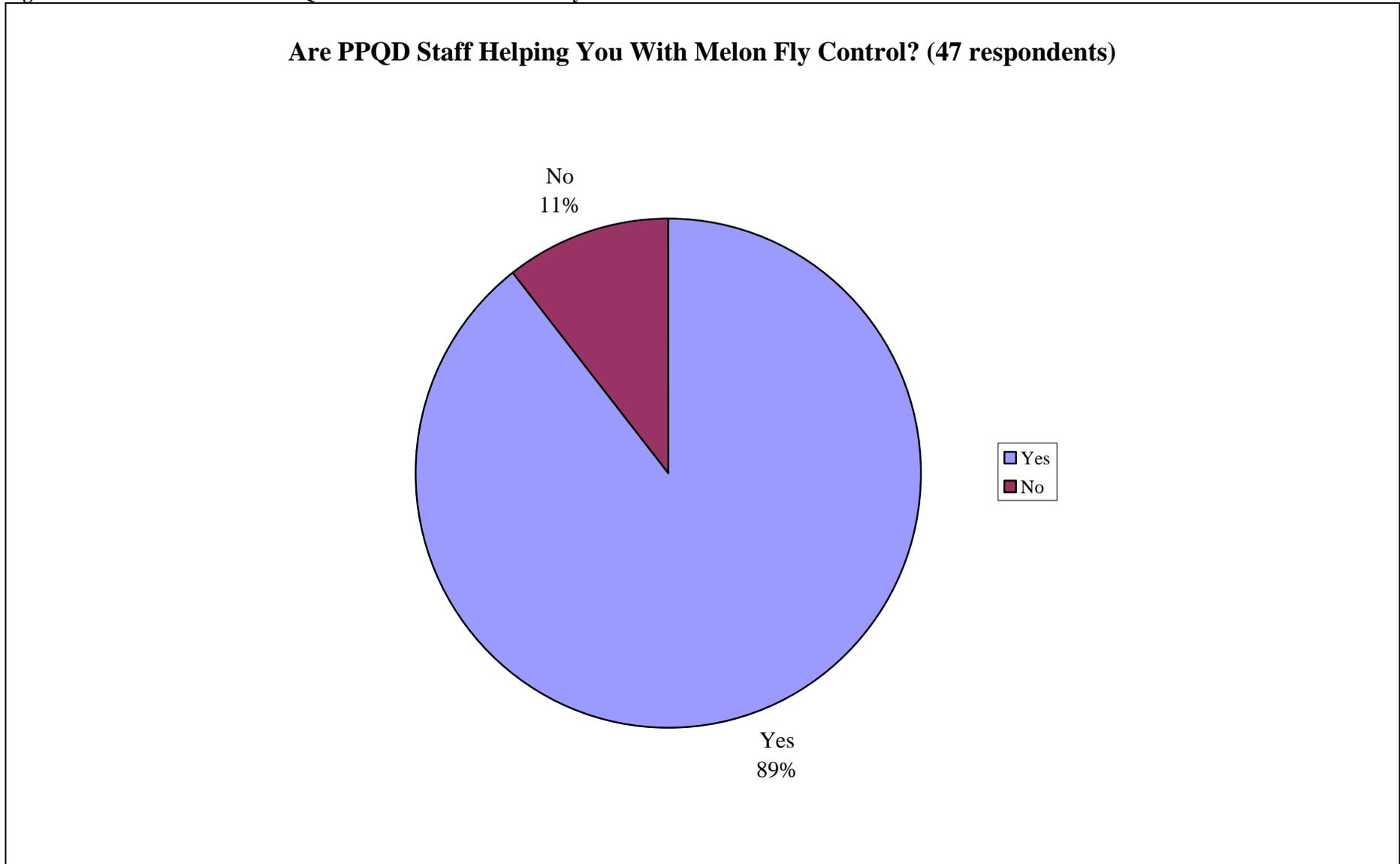
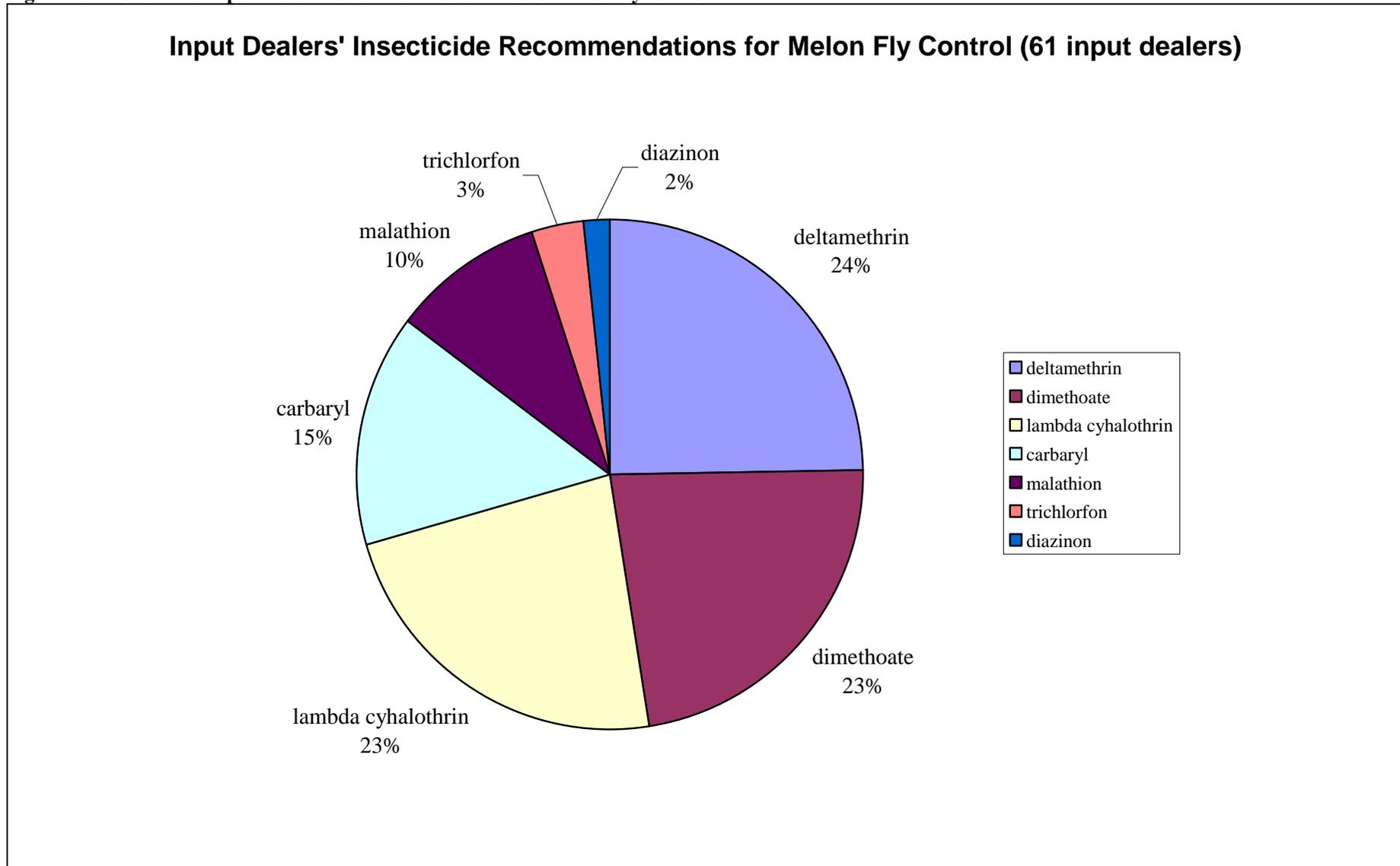


Figure 13. Insecticides input dealers recommend to farmers for melon fly control.



Discussion and Conclusions

In general, the results from JDA and PPQD's on-farm demonstrations show that if the recommendations are followed then a farmer will get superior control compared to neighboring farmers who use other pesticides and spray more than 1x/week. JDA and PPQD's on-farm demonstrations show that by following the recommendations melon fly can be controlled with less pesticide and a less toxic pesticide. This saves farmers money through less pesticide sprayed and exposes them to less pesticide. It also raises farmers' income as less fruit is damaged from melon fly.

JDA's monitoring of 47 farmers shows that most of these farmers are using deltamethrin, the recommended insecticide. However, dimethoate was still used by 17% of farmers, with the remaining farmers using other more toxic insecticides. Agricultural input dealers recommend deltamethrin, dimethoate and lambda cyhalothrin equally for melon fly control. This shows the need for more input dealer education about proper melon fly control. However, farmers must also continue to receive training in melon fly control as input dealers cannot be trusted to sell the correct product to farmers. If farmers know that deltamethrin is the correct insecticide, then they will not buy other insecticides from input dealers.

One drawback to controlling melon fly with insecticides is that beneficials are severely affected. Towards the end of the season farmers see increased levels of aphids, whitefly and mites, which can come in as secondary pests when beneficial insects, which normally control these pests, are killed off by insecticide sprays.

Some farmers who participated in the training workshops are tied to a melon trader who wants to export 'Arkoni' melons to India. These melons become available late in the season (September – October) and ship and store well. They can be shipped to India at a time when melons in India are out of season and sold at about double the in-season price. In order to ship to India 'Arkoni' melons must be free of melon fly. India will close the border to Afghan melons if melon fly or melon fly damage is found.

Overall, JDA and PPQD's approach to demonstrating to farmers on-farm how melon fly should be controlled, coupled with training before the season starts, has proven effective for controlling melon fly. However, there is room for improvement as the current control recommendations rely mostly on prophylactic insecticide applications, and input dealers are still recommending products that are not appropriate and more dangerous than deltamethrin.

Recommendations

The following are recommendations to further improve farmers' control of melon fly:

1. Aggressively target input dealers with melon fly control recommendations.
2. Use radio to disseminate melon fly control information to farmers and input dealers.

3. Continue to hold training for farmers on melon fly control- train farmers district by district to “saturate” provinces with training.
4. Encourage bagging of melons, as bagged melons fetched a higher price according to farmers who practiced this in 2008.

There are also several critical research needs that would help improve melon fly control in the future. Currently sprays are done on the assumption that melon fly is present. There is no known way to monitor the presence of melon fly, other than damage to fruit. Some type of trap would help farmers know whether they have melon fly or not. This would inform a decision on whether to spray.

In addition, a couple of comments made by farmers and PPQD at the wrap-up melon meeting should be further investigated. One, that melons that were planted near the road and thus became very dusty and had no melon fly infestation, may indicate that the fly could not find the melons because the dust interfered with the fly finding its’ host. The second comment of interest is that a PPQD staff member from Jawzjan claimed that the site where the melon fly oviposits produces a yellow sap. If this area is sliced away then the fruit would be fine. If it was not cut away then it would become infested with melon fly.

GTZ in Uzbekistan may be holding a melon fly workshop in Tashkent in December 2008. They would invite experts having long-standing experience in melon fly management from countries where the melon fly is native (e.g., Iran, Turkey), as well as international experts. The director of MAIL PPQD, Mr. Ahmedi, should be invited to this and IFDC and FAO should consider helping with his travel costs. This would be an excellent opportunity for Afghanistan to benefit from the work others have done in melon fly.

Appendix 1 - Training Record

IFDC Melon Fly Workshops – Summary – Balkh Province

Date	Location (village, district, province)	# of participants and type (farmer, input dealers, other)
May 12, 2008	Mazar-i-Sharif	13 – ag. input dealers 10 – PPQD/MAIL staff 1 – other NGO 2 - Balkh University Faculty of Agriculture (BUFA)
May 15, 2008	Pushti-bagh, Dedadhi district, Balkh	48 – farmers 3 – ASAP Mazar staff
May 20, 2008	Qadim, Sholgara district, Balkh	32 – farmers 1 – input dealer
May 22, 2008	Samarqandian, Balkh district, Balkh	31 – farmers
May 29, 2008	Akramboy, Dedadhi district, Balkh	52 – farmers
June 1, 2008	Balkh city center, Balkh district, Balkh	46 – farmers
June 10, 2008	Bodenaqala, Sholgara district, Balkh	57 – farmers
Total		266 – farmers trained in 6 workshops in Balkh province 13 – input dealers trained in 1 workshop

IFDC Melon Fly Workshops – Summary – Jawzjan Province

Date	Location (village, district, province)	# of participants and type (farmer, input dealers, other)
June 3, 2008	Faizabad Ctr, Faizabad, Jawzjan	47 – farmers 2 – German Agro Action
June 5, 2008	Khojadoko Ctr, Khojadoko, Jawzjan	57 – farmers
June 10, 2008	Qaraborn, Aqcha, Jawzjan	57 – farmers
June 24, 2008	Kolabof, Aqcha, Jawzjan	59 – farmers
June 26, 2008	Aymaq, Khojadoko, Jawzjan	58 – farmers
June 30, 2008	Aliabad, Faizabad, Jawzjan	55 – farmers
July 13, 2008	Dalee watinee, Mingajik, Jawzjan	28 – farmers 3 – Tearfund staff (Tearfund organized this workshop)
Total		361 farmers trained in 7 workshops in Jawzjan province

IFDC Melon Fly Workshops – Summary – Saripul Province

Date	Location (village, district, province)	# of participants and type (farmer, input dealers, other)
June 11, 2008	Qaragho, Saripul, Saripul	60 – farmers
June 12, 2008	Sayed Ctr, Sayed, Saripul	56 – farmers
July 8, 2008	Saripul Ctr, Saripul	60 – farmers + 4 PPQD
July 9, 2008	Sayed, Saripul	56 – farmers + 4 PPQD
Total		232 farmers trained in 4 workshops in Saripul province

Total farmers trained in workshops by JDA and PPQD in 3 provinces: 859

List of farmers trained by MAIL PPQD & Extension staff in the field

Dates	Location (district, province)	# of farmers
May 12 – June 12, 2008	Dedadhi, Balkh	150
May 12 – June 12, 2008	Balkh, Balkh	60
May 12 – June 12, 2008	Sholgara, Balkh	30
June 2008	Aqcha, Jawzjan	120
June 2008	Khojadoko, Jawzjan	75
June 2008	Saripul Ctr, Saripul	75
June 2008	Sayad, Saripul	70
Total		580 farmers

Appendix 2 - Monitoring Results

Summary of 47 Farmers Responses in Balkh, Jawzjan & Saripul – 47 farmers

Insecticides Used for Melon Fly Control*

Chemical	# farmers	Percent of total
deltamethrin	29	55%
dimethoate	9	17%
malathion	5	9%
carbaryl	3	6%
nothing	3	6%
trichlorfon	2	4%
diazinon	1	2%
lambda cyhalothrin	1	2%
Total	53	

*some farmers mentioned more than 1 chemical

Number of Insecticide Sprays

Spray Frequency	# farmers	Percent of total
1/week	21	45%
2/week	17	36%
0/week	3	6%
1/10 days	2	4%
3/season	1	2%
1/20 days	1	2%
1/month	1	2%
4/week	1	2%
Total	47	

Are PPQD staff helping you with melon fly control?

Response	# farmers	Percent of total
Yes	42	89%
No	5	11%
Total	47	

Farmers using mechanical control

Response	# farmers	Percent of total
Yes	42	89%
No	5	11%
Total	47	

What shopkeepers are telling farmers to use to control melon fly (# of responses/chemical)

Insecticide	# of shopkeepers	Percent of total
deltamethrin	15	25%
dimethoate	14	23%
lambda cyhalothrin	14	23%
carbaryl	9	15%
malathion	6	10%
trichlorfon	2	3%
diazinon	1	2%
Total	61	

Summary by Province

Balkh province

Sholgara district (9 farmers interviewed)

Average area planted to melons – 1.8 jerib (=0.4 ha)

Chemicals used for melon fly control

- Deltamethrin – 4/9 farmers
- Malathion – 2/9 farmers
- Diazinon – 1/9 farmers
- Nothing – 2/9 farmers

Number of sprays/week

- 2x/week – 3/9 farmers
- 1x/week – 3/9 farmers
- 1x/10 days – 1/9 farmers
- 0x/week – 2/9 farmers

Are PPQD staff helping you to control melon fly?

- Yes – 6/9 farmers
- No – 3/9 farmers

Do you use mechanical control (disposing of infested fruit properly)?

- Yes – 9/9 farmers

Idea of pesticide safety

- 8/9 farmers had some idea of pesticide safety.

What shopkeepers tell farmers to use to control melon fly (# of responses/chemical)-

- Dimethoate – 3 shopkeepers
- Deltamethrin – 2 shopkeepers
- Malathion – 1 shopkeepers
- Diazinon – 1 shopkeepers

Balkh district (10 farmers interviewed)

Average area planted to melons – 7.8 jerib (=1.5 ha)

Chemicals used for melon fly control (farmers mentioned more than 1)

- Deltamethrin - 4
- Carbaryl - 2
- Malathion - 2
- Dimethoate - 3
- Trichlorfon - 2

- Lambda cyhalothrin - 1
- No chemical – 1

Number of sprays/week

- 1x/week – 4
- 2x/week – 2
- 3x/season – 1
- 1x/20 days – 1
- 1x/month – 1
- 0x/week – 1

Are PPQD staff helping you to control melon fly?

- Yes – 8 farmers
- No – 2 farmers

Do you use mechanical control (disposing of infested fruit properly)?

- Yes – 7/9 farmers
- No – 1 farmers
- 1 farmer- no infested fruit yet

Idea of pesticide safety

- 9/10 farmers had some idea of pesticide safety.

What shopkeepers tell farmers to use to control melon fly (# of responses/chemical)-

- Deltamethrin – 4
- Carbaryl – 4
- Malathion – 2
- Dimethoate – 3
- Trichlorfon – 2
- Lambda cyhalothrin – 4

Dedadhi district (7 farmers interviewed)

Average area planted to melons – 6.1 jerib (=1.2 ha)

Chemicals used for melon fly control (farmers mentioned more than 1)

- Deltamethrin - 7
- Carbaryl - 1

Number of sprays/week

- 1x/week – 5
- 2x/week – 1
- 1x/10 days – 1

Are PPQD staff helping you to control melon fly?

- Yes – 7 farmers
- No – 0 farmers

Do you use mechanical control (disposing of infested fruit properly)?

- Yes – 5/7 farmers
- No infested fruit yet – 1 farmer

Idea of pesticide safety

- 7/7 farmers had some idea of pesticide safety.

What shopkeepers tell farmers to use to control melon fly (# of responses/chemical)-

- Deltamethrin – 7
- Carbaryl – 5

Jawzjan province

Aqcha district (4 farmers interviewed)

Average area planted to melons – 2.3 jerib (=0.5 ha)

Chemicals used for melon fly control

- Deltamethrin – 1
- Dimethoate – 3

Number of sprays/week

- 4x/week – 1
- 1x/week – 1
- 2x/week – 2

Are PPQD staff helping you to control melon fly?

- Yes – 4 farmers
- No – 0 farmers

Do you use mechanical control (disposing of infested fruit properly)?

- Yes – 4/4 farmers

Idea of pesticide safety

- 4/4 farmers had some idea of pesticide safety.

What shopkeepers tell farmers to use to control melon fly (# of responses/chemical)-

- Deltamethrin – 1
- Malathion – 1
- Dimethoate – 3

Khojadoko district (12 farmers interviewed)

Average area planted to melons – 10 jerib (=2 ha)

Chemicals used for melon fly control

- Deltamethrin – 8
- Malathion – 1
- Dimethoate – 3

Number of sprays/week

- 1x/week – 4
- 2x/week – 8

Are PPQD staff helping you to control melon fly?

- Yes – 12 farmers
- No – 0 farmers

Do you use mechanical control (disposing of infested fruit properly)?

- Yes – 12/12 farmers

Idea of pesticide safety

- 12/12 farmers had some idea of pesticide safety.

What shopkeepers tell farmers to use to control melon fly (# of responses/chemical)-

- Deltamethrin – 1
- Malathion – 2
- Dimethoate – 5
- Lambda cyhalothrin – 10

Saripul province

Sayed district (5 farmers interviewed)

Average area planted to melons – 3.6 jerib (=0.7 ha)

Chemicals used for melon fly control

- Deltamethrin – 5

Number of sprays/week

- 1x/week – 4
- 2x/week – 1

Are PPQD staff helping you to control melon fly?

- Yes – 5 farmers
- No – 0 farmers

Do you use mechanical control (disposing of infested fruit properly)?

- Yes – 5/5 farmers

Idea of pesticide safety

- 5/5 farmers had some idea of pesticide safety.

What shopkeepers tell farmers to use to control melon fly (# of responses/chemical)-

- Deltamethrin – 4

Appendix 3 - Wrap-Up Melon Fly Meeting - Notes

September 22, 2008

JDA Farm, Dedadhi

Attendees: MAIL PPQD staff from Saripul, Jawzjan and Balkh; selected farmers from each province, IFDC and JDA staff

Saripul

Farmer

-his neighbors are using other pesticides (other than deltamethrin, the recommended product) and getting bad results- 2-3x/week application (e.g. dimethoate); he is used deltamethrin 10x over the season and got good results

-government should control chemical quality, pay attention to expiration date/expired insecticides

-government should provide more training before planting date- make a local council for melon fly control

-for the past 3-4 years he's had large losses due to melon fly, but not this year; in 2007 60% of his crop was damaged and previous years saw similar damage

PPQD agent from Sayed district

-input dealers used to sell methyl parathion and dimethoate for melon fly, now they sell deltamethrin

- input dealers would show farmers the actual can of deltamethrin so they could ID it as the correct chemical

- input dealers - have cans with no label, no expiration date, sometimes sell a can thinking it is deltamethrin, but it's really methyl parathion

-some input dealers are selling chemicals based on smell! Bad smell = must control melon fly/very toxic

-farmers are doing field sanitation

-we scouted for pupae and some farmers even helped

Jawzjan

PPQD staff

-one farmer bagged 700 melons, another 40 melons and both were happy with this
-input dealers came to PPQD's trainings

-where the melon fly oviposits a yellow sap comes from the fruit

-sliced away this area and the fruit was fine

-if this area was not sliced away the fruit went bad (melon fly infestation)

-farmers want bags!!!

-2007 – farmers used methyl parathion

- 2008 – 80% of farmers in Faizabad district used deltamethrin
- 1L of deltamethrin costs 500 Afs (cost to buy in Faizabad), but bags can be made with that money instead, therefore farmers like/want bags
- farmers are doing field sanitation

- 1 farmer bagged 50 melons- these melons were sold for 50Afs each and were larger than non-bagged melons that were sprayed
 - melons that were sprayed sold for 25 Afs each
- if an infested melon is bagged it traps the melon fly, preventing it from causing more damage

- crop rotation a good idea

- melons planted near road get very dusty- these plantings had 0% melon fly infestation

- 2007- bad control, 2008 – good control
- bagging is a good idea

Farmer

- compared 2007 vs. 2008 income and expenses- much higher income in 2008 because he used deltamethrin

- drought this year led to melons dieing due to lack of water, no production in some places

- deltamethrin- this is a good chemical, it works

- farmer scouted for bad fruit and did field sanitation

- 2008- some farmers went to the hospital sick because they sprayed the wrong chemical when it was windy

- bagging is a good idea- if somebody gives him bags he'll bag 15 jeribs (3 ha) of melons

Balkh

PPQD staff

- input dealers don't understand pesticide safety- how to store pesticides, pesticides are stored in drinking containers!

- one farmer who grew lowbahya-ee melons (this is an early type of soft melon that is oblate-wider than it is long, that seems to be very susceptible to melon fly) had 0% bad fruit- he used deltamethrin

- farmers growing in irrigated systems want chemicals instead of bags

- a farmer who planted late had bad melon fly infestation

- a farmer who planted early had low infestation

farmer

- likes idea of bagging