

CONSULTANCY REPORT ON INSECT PESTS, MITES AND
DISEASE PROBLEMS IN THE ORCHARDS AND VINEYARDS
OF 4 SOUTHWESTERN PROVINCES OF AFGHANISTAN.

MERCY CORPS INTERNATIONAL
O/USAID/REP. AFGHANISTAN

BY
PROFESSOR PIR MOHAMMED SIDDIQI
NOV 2 TO DEC 31, 1992.

TABLE OF CONTENTS

Introduction	1
Oruzgan Province	2
Kandahar Province	4
Helmand Province	8
Zabul Province	10
Recommendation for Pest Management Programs	12
Course Syllabus	15
Daily Course Objectives	16
Summary	18

Tables:

Table 1.	Results of observations and interview made with MCI field staff and growers related to insect pests and diseases of orchards and vineyards in Oruzgan province.	3
Table 2.	Results of observations and interviews made with MCI staff and local growers related to insect pests and diseases of orchards and vineyards in Kandahar province.	5
Table 3.	Results of observations and interviews made with MCI staff and local growers related to insect pests and diseases of orchards and vineyards in Helmand province.	9
Table 4.	Results of observations and interviews made with MCI staff and local growers related to insect pests and diseases of orchards and vineyards in Zabul province.	11

Annexes:

Annex I.	Interview Questionnaires, Oruzgan province	19
Annex II.	Interview Questionnaires, Kandahar province	25
Annex III.	Interview Questionnaires, Helmand province	32
Annex IV.	Interview Questionnaires, Zabul province	33

Forms:

Data collection form for determination of population densities of Black Veined White Butterfly, Limb Aphids and Lecanium Scale in orchards treated under IPM program	36
Appendix A Pictures of Pests	37

INSECT PESTS, MITES AND DISEASE PROBLEMS IN THE ORCHARDS AND VINEYARDS OF 4 SOUTHWESTERN PROVINCES OF AFGHANISTAN

Introduction:

In order to monitor the pest population and disease problems in the orchards and vineyards of 4 Southwestern provinces of Afghanistan a two week trip (Nov. 4-18) were arranged to visit orchards and vineyards and interview MCI field staff and local growers in different localities of the provinces.

In each one of the provinces several orchards and vineyards in different districts were closely examined for pest populations and the kinds of damage caused. In addition, a number of MCI field staff and local growers were interviewed about the major pests, number of years the problem existed and the damage caused by certain kinds of pest species.

To estimate the pest population in the orchards, 5 trees in different spots of the orchards were randomly selected and closely observed. Based on the population of the pests observed they were estimated as major, moderate and minor pests. The damage caused was also inspected closely in each one of the trees and vineyards.

Samples of pests found in the orchards and vineyards were collected, slides and pictures of specific stages were taken (see appendix A). Based on the information collected insect pest and disease problems of each province will be explained separately as follows.

A. Oruzgan Province

The growers in this province are mainly growing almonds, shakerpara, apricot, plum and fig trees. Apple and quince are rarely grown in some orchards for personal use. The trees are planted in reasonable distances of about 5 x 5 or 6 x 6 meters. The trees are pruned around 2 to 2.5 meters from the ground surface. They are growing wheat, corn, alfalfa and vegetable between the rows of the trees and are also grazing their animals in the orchards. This is why they prune the trees higher from the ground.

According to the observations made in the orchards and the interview made with MCI extension worker and 31 growers in 21 different localities of 3 districts of Oruzgan province (Annex I) the following insects pests and diseases were found in the growing areas Tab 1.

1. Black veined white butterfly Aporia Crataegi L
2. Tent caterpillar Malacosoma indica wlk.
3. Limb aphid Pterochlorus persicae (chol)
4. Round headed wood borer Aeolesthes sarta (Solsky)
5. Codling moth Lespeyresia pomenella L.
6. Lecanium scale Lecanium turanicum (Arch)
7. Oriental wasp Waspa orientalis (L)
8. Gummosis Unknown
9. Shot holes Clasterosporium corpophilum (lew.)

Out of the above mentioned pests the first three are widely spread in the orchards and cause serious damage to the trees and fruit of almond, apricot and plum which are commercially grown in the area. The larvae of black veined white butterfly and tent caterpillar mainly feed on leaves and cause a complete defoliation of the trees. Big colonies of limb aphids were seen feeding on the sap of branches and trunk of the above mentioned trees. The aphid feeding usually cause the bark of the trees to crack, dry and die, especially in the sunny side of the orchards. In almost every branch of the trees examined the nests of the larvae of black veined white butterfly and a long colony of limb aphids were present. In Shinya and Sangar orchards of Chora and Khas Oruzgan districts the nest of tent caterpillar were also observed. These are economically important pests, therefore considerable attention is needed to be given to their control program.

Codling moth and round headed wood borer are serious pests of apple trees while lecanium scale is a minor pest of almonds in a few spots in Oruzgan. However, apple trees are not grown in a large scale in the area.

A large number of oriental wasps were seen flying over the trees infected with limb aphids. The insect feeds and breaks the skin of ripe apricot fruit and causes the fruit to rot. The insect also stings and bothers the growers during the fruit picking activities.

Table 1- Results of observations and interview made with MCI field staff and local growers related to insect pests and diseases of orchards and vineyards in Oruzgan province.

Districts	No. of Locations Visited	No. of MCI Field Staff Interviewed	No. of Growers Interviewed	Kinds of pests	Host Plants	No. of years occurred	Remarks
Chora	11	1	12	Black veined white butterfly Tent caterpillar Limb aphid Round headed wood borer Lecanium scale Shot hole Codling moth	Almond, Apricot Almond, Apricot Almond, Apricot, Plum, Peach Apple Almond Apricot Apple, Quince	20-25 2 10 15 3 10-15 20	Major Moderate Major Major Minor Major Major
Khas Oruzgan	10	1	15	Black veined white butterfly limb aphid Tent caterpillar	Almond, Apricot and Shakarpara Almond, Apricot and Shakarpara Almond, Apricot and Plum	20 10-15 2	Major Major Major
Gezab	03		03	Black veined white butterfly Limb aphid	Almond, Apricot and Shakarpara Almond, Apricot, Shakarpara and Plum	30 10	Major Major

Gummosis is a minor pest of almond and apricot trees. Only a small number of trees were infected with this disease in some orchards. The infected trees were weak and about to die.

Shot hole symptoms were seen in almost all of the apricot leaves inspected. The damage is usually severe in cold springs. The infected leaves become yellow and drop. The infected trees lose vigor and the fruits ripen prematurely and will be misshaped.

B. Kandahar Province.

In this province the grape vines are commercially grown in Dand, Daman, Maywand and most parts of Panjwai districts, while almond, apricot, plum, fig and pomegranates are the commercial crops of Shawalicot, Khakraiz and Arghandab valleys.

For determination of insect pests, mites and diseases, several orchards and vineyards were visited and examined in 23 localities of 7 districts. However, interviews were made with 5 MCI extension workers and 38 growers in the areas visited (Annex II). As a result it is noticed that a number of insect pests, mites and diseases were present in different localities of the province. Some were widely distributed throughout the province but some were a pest of specific locality Tab. 2.

The information collected from the extension workers and growers and the result of observations made, indicated that the following insect pest and diseases attack the fruit trees and grape vines and causes a certain amount of damage each year.

1. Insects pests

- a. Black veined white butterfly Aporia crataegi L
- b. Round headed wood borer Aeolesthes sarta (Solsky)
- c. Flat headed wood borer Capnodis carbonaria klug
- d. Grape berry moth Clysia Ambiguella L.
- e. Pomegranate fruit worm Euzophera punicaella
- f. Limb aphid Pterochlorus persicae
- g. Pomegranate Aphid Aphis punicae (pass)
- h. Green Aphids Myzus persicae (sulz)
- i. Bark Beetle Scolytus rugulosus Ratz.
- j. White flies Dialeurodes sp
- k. Oriental Wasp Waspa orientalis (L.)
- l. Mite Webs on grape leaves. Unknown

2. Diseases

- a. Powdery mildew Uncinula necator Burr.
- b. Gummosis.
- c. Shot hole Clasterosporium corpophilum (lew).
- d. Zilie.

Table 2- Results of observations and interview made with MCI field staff and local growers related to insect pests and diseases of orchards and vineyards in Kandahar province.

Districts	No. of locations visited	No. of MCI field staff interviewed	No. of growers interviewed	Kinds of pests	Host Plants	No. of years occurred	Remarks
Panjwai	03	01	03	Limb aphids	Apricot, Plum, Almond	4	Major
				Bark beetle	Plum	2	Minor
				Round headed Wood borer	Apple	10	Major
				White flies	Apricot, Peach, Plum, Pomegranate	5	Major
				Green aphids	Apricot, Peach	15	Moderate
Shahwalicot	04		7	Powdery mildew	Vineyard	10-15	Major
				Gummosis	Apricot, Plum	7	Moderate
				Black veined white butterfly	Almond, Apricot and Shakarpara	8-10	Major
				limb aphid	Same hosts	10	Major
Khakraiz	02		04	Round headed wood borer	Fig	04	Major
				Black veined white butterfly	Almond, Plum, Apricot and Shakarpara	10	Major
				Limb aphid	Same hosts	10	Major
Dand	08	02	09	Lecanium scale	Almond	08	Minor
				Grape oerry moth	Grape berries	08-17	Moderate
				Pomegranate aphid	Pomegranate	17-20	Minor
Arghandab	05	01	06	Oriental wasp	Grape berries	10-20	Moderate
				Mite webs	Grape vine leaves	22	Minor
				Powdery mildew	Vineyard	03-05	Major
				Pomegranate aphid	Pomegranate	12-23	Moderate
				Round headed wood borer	Apple, Apricot	17	Major
Maywand	01	01	05	Pomegranate fruit worm	Pomegranate	10-11	Moderate
				Powdery mildew	Vineyard	03	Major
				Shot hole	Apricot	15	Severe
				Grape berry moth	Grape berries	17	Moderate
Daman	01		04	Pomegranate aphid	Pomegranate	12	Moderate
				Powdery mildew	Vineyard	03	Major

Some of the above mentioned insects and diseases are major pests, especially in the areas where fruit trees and grape vines are growing commercially. Some are moderate and a few are minor pests. Therefore, it is needed to give a brief discussion about each one of them.

Black veined white butterfly is a serious pest of almond, apricot and plum trees. The insect is distributed all over the province. The nest of the larvae were present on almost all branches of the trees examined in the whole area. Some of the pupal cases found in the orchards were parasitized. In the spring the larvae of this insect feed on flower and young leaves. Later instars cause more damage and in a case of severe infestations will completely defoliate an orchard.

Round headed wood borer is a serious pest of fig trees in some parts of the Kandahar province. In one of the orchards in Shawalicot district around 40-60% of the fig trees were infected with the larvae of this insect and most trees were killed. In Panjwai district apple trees were also severely infested with the larvae of this pest. The larvae of this insect bores large channels in to the trunk and large branches of host trees causing girdling or weakening of limbs and trunks. In severe infestation, trees are killed or seriously weakened so that they fall in strong winds. Adults are long horn beetles, feed on foliage but do not cause economic damage. One can easily tell the infected tree by the brown secretion and frass of the insect coming out from the infested spots of trunk and branches.

Flat headed wood borer was a minor pest in Panjwai district. Only one sample of this pest was found from infected plum tree. There were signs of wood borers in the trunk of apricot trees in Arghandab valley but a specimen was not found to identify the kind of the borer. The damage caused by the borer is similar to that of the round headed borer.

Grape berry moth infection was noticed in most of the vineyards examined in the Kandahar province. The larvae of this insect feed on berries and cause bunch spoilage. Usually fungi develops in the damaged berries and a white decayed substance appears in the infected bunches of grapes. The insect has at least two generations per year and usually over winters in the pupal stage in the soil or foliage. If the vineyards are shoveled thoroughly in the early spring before adult emergence, the insect population and damage will be considerably decreased.

Pomegranate fruit worm feeds on the seeds and causes spoilage of the fruits. In Arghandab valley heavy infestation were noticed in the orchards where the growers were harvesting the fruits. In the orchards visited several fruits were opened and examined for larvae infestation. In 20-30 percent of the fruits examined the larvae was either present or the infected seeds were spoiled. On the infected seed bluish fungus was spread over with the feces of larvae. Larvae usually penetrate the fruits through the blossom ends and cause a yellowish fluid to ooze from the wounds. Infested young fruits rot and fall prematurely.

Pomegranate aphids are greenish soft bodied insects usually clustered on new leaves, growing tips and small fruits. In the spring all sizes of this insect will be present on pomegranate trees. Infected leaves curl and the plant loses vigor. Aphids also produce honeydew which gives the leaves a shiny appearance.

Green aphids mainly attack apricot, peaches, plum and almond and also can be found on pomegranate leaves. The insect feeding causes the leaves to curl and shrink and also stunt the growing tips. Very few specimens were found on the leaves of peaches and plums examined in Panjwai and Arghandab district. In the spring groups of this insect will be observed on growing tips or on under side of leaves. On the infected trees honeydew will often be noticed along with the presence of sooty mold. Except pomegranate, branches of the rest of the trees were severely infested with the limb aphids in almost all the orchards visited in different districts. The aphids produce honeydew and will be seen on ground and limbs below feeding areas. Trees having severe infestations will appear with yellowish leaves and marked reduction in vigor.

Bark beetle was a minor pest of fruit trees and was only found on weak plum trees in Panjwai orchards. The insect feeds under the bark and makes galleries of different patterns. In the infested trees the bark detaches the cambium, the tree loses vigor and gradually dies. The fruits fall prematurely.

In Panjwai district large colonies of white flies were found on every single leaf of peaches, apricot, almond, apple and pomegranate trees. Adults are small white insects. Both nymph and adults are found on the bottom surface of leaves. The insect causes damage by sucking the sap from the leaves. The infected leaves become pale yellow, gradually change to brown and drop.

Large numbers of oriental wasps were found flying and feeding in Kishmish Khanas and also on honeydews on trees infested with limb aphids. The insect is a large dark brown wasp and is banded yellow and orange in color. This wasp is a serious pest of ripe grapes and apricots. In feeding this insect breaks the skin of ripe grape and apricot and causes the fruit to rot. Exposed bunches of grapes may be completely destroyed by this pest. In the orchards infested with the limb aphids the wasps sting the workers and disturb the fruit picking activities.

Mite specimens were not found in the vineyards and orchards visited in Kandahar. MCI field staff and local growers were not familiar with this creature but the webs were examined on the leaves of grape vines. Mites usually live on the underside of leaves and cover the leaf surface with webs. When large numbers of mites are present, the leaves become brown in color, often referred to as "Bronzing" which can be noticed at quite a distance. Mite damage is most severe under hot dry conditions. Mites suck the sap from the plant causing leaf damage and loss of vigor. Severe infestation can result in stunting, loss of growth and reduced fruit production.

Powdery mildew was noticed in every one of the vineyards examined in the four provinces. The symptoms of this disease were noticed both on leaves and berries that were left on grape vines. The disease can attack all above ground parts of the grape plant. The fungus appears in the summer when the fruit is small and under favorable moisture conditions can rapidly spread covering small grapes, leaves and stems with a whitish grey patches. Leaves curl upward at edges and may die. Infected fruits became hard, crack and shell off badly. Mildew may also show on the new shoots and even the blossoms can some times be infected causing them to dry up or fail to set fruit.

Though gummosis is briefly discussed under Oruzgan pest problems, it is better to give detail information about the causal mechanisms of the disease. Mechanical injury, winter injury, insect damage, fungus diseases or improper growing conditions cause the disease in fruit trees. Gumming often follow brown rot infection of the twigs in peaches, apricots and almonds. However, gumming may also be spontaneous, especially in trees that have made a forced growth, due to too much water or nitrogenous fertilizer, or both. Gum exuding from buds, twigs, branches or trunks as a result of the before mentioned injuries or adverse growing conditions.

Shot hole was found on the leaves of almost all of the apricot trees in Arghandab valley. A brief discussion is given about this disease under the Oruzgan pest problems.

The vineyard growers in Dand and Panjwai districts were complaining about a symptom which in the mid or late spring and summer season causes the leaves of the grape vines to gradually become yellow and drop. They locally were calling this kind of symptom zilie. I didn't see the symptom because it was late when I visited the vineyards. It is necessary to search for the causal mechanism in the spring and summer and try to find the possible control methods for it.

C. Helmand Province

In this province the orchards and vineyards were visited and examined in three locations in quite good distances from Lashkergah. Interview were made with 10 growers about major insect pests and diseases of orchards and vineyards (Annex III). Because of security problems it was not possible to travel to Grishk, Nowzad and Marja. Due to the observations and interview made with the growers, the following insects and diseases were the major problems in the area Tab. 3.

1. Round headed wood borer
2. Limb aphids
3. White peach scale (*Pseudaulacaspis pentagona* Tozz).
4. Powdery mildew.

The borer was a serious pest of apple trees. Majority of the trees examined in Lashkary bazaar, Kala-i-Bust and Serkar areas were severely infected with this pest. Most of the infested trees were killed.

In the above mentioned localities limb aphids were a serious pest on peach, plum and apricot trees. Most of the branches of the above mentioned trees were covered with cluster of aphids for about 15 cm. or more.

White peach scale was found on plum tree in Serkar area. Branches, especially the young shoots looked as if they were coated with white minute particles of dust. If the shell of one of these scales will be removed, bright-yellow pinhead-sized insect can be seen underneath it. The insect is injurious to deciduous fruit trees and also attack some other plants. The insect sucks the sap from young shoots, branches, fruit and leaves. Infected parts of the plants appear inflamed due to the toxin released by the insects and foliage becomes yellow and spotted. Infected trees lose vigor and

Table 3- Results of observations and interview made with MCI field staff and local growers related to insect pests and diseases of orchards and vineyards in Helmand province.

Districts	No. of locations visited	No. of MCI field staff interviewed	No. of growers interviewed	Kinds of pests	Host Plants	No. of Years Occurred	Remarks
Lashkargah	03		10	Round headed wood borer	Apple	12-17	Major
				Limb aphids	Peach, Plum, Apricot	04-15	Major
				Powdery mildew	Vineyard	03	Major
				White peach scale	Plum	04	Minor

the young shoots on the upper part of the trees die. Severe infestation causes the tree to die in a short period of time.

The vineyards observed in any locations of the above mentioned areas of Lashkergah had the problem of powdery mildew. The growers were impatiently looking for the help to find the possible effective way to control the disease or find good quality sulphur dust for dusting.

D. Zabul Province

In 12 localities of 3 districts of this province the following insect pests and disease were noticed through direct examination of the orchards and vineyards and interview made with the growers (Annex IV).

1. Insect pests

- a. Black veined white butterfly.
- b. Limb aphids
- c. Round headed wood borer.
- d. Lecanium scale

2. Diseases

- a. Powdery mildew
- b. Dark brown spots on leaves
- c. Shrinkage leaves on young branch
- d. Pale yellow color on leaves, starting from the margins.

Black veined white butterfly and limb aphids were widely distributed in all three districts as well as in other three provinces mentioned before. Lecanium scale was going to become serious on almond trees in Takir, Shikhan, Multani, Gashi and Boragai areas Tab. 4.

Powdery mildew was a known disease of vineyards in Kakaran, Boragai and Alwalgai areas. The damage of this disease was severe during the last three years. The leaves of almond trees were found severely infected with three unknown diseases in all the orchards visited in 3 district of Zabul province Tab. 4.

In the Zabul province the pest problems were very serious and sophisticated in the almond orchards of all localities. I anticipate this is due to over and untechnical usage of pesticides and commercial fertilizers.

Table 4- Results of observations and interview made with MCI field staff and local growers related to insect pests and diseases of orchards and vineyards in Zabul province.

Districts	No. of locations visited	No. of MCI Field Staff Interviewed	No. of growers Interviewed	Kinds of pests	Host Plant	No. of Years occurred	Remarks
Soory	02		06	Lecanium scale	Almond	08	Minor
				Round headed wood borer	Apple	18	Major
				Powdery mildew	Vineyard	03	Major
Shahresafa	05		11	Black veined white butterfly	Almond	22	Major
				Lecanium scale	Almond	08	Major
				Limb aphid	Almond	04	Major
				Gummosis	Almond	03	Minor
				Dark brown spots on leaves	Almond	02	Major
				Shrinkage leaves on young shoots	Almond	03	Major
				Pale yellow leaves	Almond	03	Major
				Powdery mildew	Almond	03-04	Major
Mizan	04		08	Black veined white butterfly	Almond	22-25	Major
				lecanium scale	Almond	08-15	Major
				Limb aphid	Almond	04-06	Major
				Gummosis	Almond	03-05	Major
				Dark brown spots on leaves	Almond	02	Major
				Shrinkage leaves on young shoots	Almond	3	Major
				Pale yellow leaves	Almond	3	Major

Recommendation for pest management program

An Integrated Pest Management program should be considered to decrease the population levels of the three major insect pests in 4 Southwestern provinces.

The black veined white butterfly and limb aphids are the major and serious pests spread all over the orchards of Oruzgan, Kandahar, Helmand and Zabul provinces. The pests cause severe damage to the almond, apricot, and plum trees every year. Great numbers of oriental wasps fly and feed on the honeydew of limb aphids, ripe fruit of apricots and grapes. The insect also stings and bothers the growers during the fruit picking activities. To reduce the amount of damage caused by the above mentioned pests it is necessary to use almost all the practical methods available and economical for the growers. In order to encourage and increase the population of the parasite infecting the larval stage of the black veined white butterfly and to suppress the population of the above mentioned insect pests, the following program is recommended to be applied in 2 or 3 orchards close to the MCI centers in each of the specific areas.

1. In the spring during prebud break at dormant stage apply lime sulphur at a rate of one liter/9 liters of water. That helps to control lecanium scale and some fungal diseases. To prepare lime sulphur use the following materials in a given proportion.
 1. Unhydrated lime 1Kg
 2. Sulphur wettable powder 2Kg
 3. Water 3.5 gallons (or 16 liters)Mix all the above materials in a container. Put the container on fire and let it boil for one hour, stirring well. When the solution takes dark brown colour, remove the container from the fire and let it cool. Then filter the solution through a piece of cloth, within one week spray it in your orchards.
2. In the spring of the same year watch the larval activities of the target pest in the three branches of at least 5 selected trees once a week. Mark the branches with red or blue pieces of cloth.
3. When the larvae become active and start feeding usually at popcorn stage before blossoms open use BT. (*Bacillus thuringiensis*) according to the manufacturer recommendations. Be sure that for at least 4-5 days or a week there won't be a chance of shower, because it washes the insecticide and reduces its efficacy. This insecticide also controls the larvae of the tent caterpillar and other lepidoptera.
4. When the butterfly pupates, select at least 50 pupal cases on the marked branches of the 5 selected trees. Count the number of normal pupae and the ones with brown to black color and compare the percentage of infestation. The pupae with brown to black color are usually going to be infected with parasites. Remove as many of the normal pupal cases as you can. Try to encourage the growers to implement the same method in their orchards.

5. In spring or early summer of the same year spray the orchards with malathion, sumithion, novathion or metasystox-R at a rate of 2 ml/liter of water plus 3 gram of capton per liter of water. Leave at least 5 trees unsprayed at isolated spots of the orchard. These trees are going to be a good reservoir for the parasite's development in the following year. This spray in addition to the target pest also controls limb aphids, oriental wasps and shot hole disease and causes their population to be considerably low next year. Be sure that the spray must be done at least 15 days before harvest.
6. During the late fall when most of the leaves are fallen from the trees as many of the larval nest of black veined white butterfly should be removed from the trees as possible. The nests collected must be burned or buried deep in the soil. As the insect has only one generation per year it helps to keep its population down almost to the threshold level.
7. The weak limbs and branches infected with gummosis must be pruned, removed from the orchards and be burned as soon as possible.
8. To reduce the population of oriental wasps in the orchards and vineyards use poison baits made up of crushed grapes, mulberry or brown sugar and poisoned with malathion, baygon E.C. or dipterex at a rate of 2grs/Kg. Place the poisoned bait in a burlap sack and hung at least 3 to 4 of them on the branches of infested trees and near the infested grape vines. Use the poisoned bait from late spring to late fall.
9. Repeat the above mentioned procedures for 3 years, notice the results in each one of the following years and demonstrate it to the growers.
10. For best result all the orchard growers should collectively implement the above mentioned procedures during the same period of time.
11. To destroy the source of infestation the wild almond growing areas must also be considered to be sprayed twice a year with the same insecticides and in the same period of time as mentioned before.
12. To help the pest problems of almond orchard in Zabul province detail study is needed to be made during the growing seasons by both Entomologist and pathologist.

In 4 provinces all vineyard growers were complaining very much about the powdery mildew infestation. They pointed out that during the last three years, especially in 1992 due to the disease damage they lost more than 50% of their grape production. Therefore, they need to protect their vineyards and are looking for an effective way to control the disease. Some of the growers dusted their vineyards 3 times with sulphur this year but didn't get good result out of it. It means that the sulphur might have been of low quality. To help the vineyard growers with the problem I suggest the following procedures to be accomplished.

1. Good quality sulphur should be provided and distributed through MCI agriculture field staff.

The sulphur should be dusted at a rate of 2.5 Kg/gerib of vineyards. Vines should be dusted thoroughly from both sides when:

- a. The shoots are about 15 cm long.
- b. The fruits are about the size of green pease.

2. If good quality sulphur will not be available, for best result Bordeaux mixture or any copper base fungicides should be applied.
3. Spray the vineyards with lime-sulphur at dorment stage in late autumn or prebud break in spring at a rate recommended before.
4. Let the growers to know of how important is to remove the leaves, plant residues and weeds from the vineyards to reduce the amount of damage causes by the disease.
5. In Dand, Maywand and Panjwai the water table is almost to the surface soil. It may possibly helps the dissemination and severity of the disease. So, the improved drainage system may help to reduce the disease infestation.

The Hudson knapsack sprayers present in the store house are suitable to be used in vineyards and vegetable farms. In order to use them efficiently in the orchards the wand should be longer. If wands are lenthened it would make it easier to spray the upper parts of the trees. If the sprayers and recommended insecticides be sold to the growers along with adequate training, it will help a lot to solve the pest problems in the areas mentioned above.

Sketches of important insect pests and disease found in the four provinces need to be prepared for display in the course going to be offered for MCI agriculture field staffs during January 1993. The field staff then can use them to describe to the growers the stages of insects and the kind of damage caused in orchards and vineyards. In order to last longer it is better they be printed in silk screens.

Course syllabus

I. Kind of pests

a. Insects

b. Diseases

1. Nonpathogenic

2. Pathogenic

c. Weeds

1. Annual

2. Biannual

3. Perennial

d. Higher animals

1. Rodents

2. Birds

Insects

1. Definition

2. Insects and their relatives

3. Insects life cycles

4. Insects feeding and mouth parts.

5. Economic importance

a. Destructive

b. Useful

c. Innocuous.

II. Control methods

1. Sanitation

2. Natural

3. Biological

4. Mechanical

5. Physical

6. Cultural

7. Chemical

8. Integrated pest management.

a. Economic injury level

b. Economic threshold.

Pesticides

1. Formulation
2. Groups
3. Toxicity and Hazards
4. Safe handling and storage

III. Important pests of Southwestern province

1. Black veined white butterfly
2. flat and round headed wood borers
3. Bark beetle
4. Tent caterpillar
5. Green, limb and pomegranate aphids.
6. Pomegranate fruit worm.
7. Grape berry moth.
8. Lecanium scale.
9. White flies.
10. Pomegranate fruit worm.
11. Mites.
12. Powdery mildew.
13. Shot hole.
14. Gummosis.

IV. Course Daily Program Objectives:

- | | |
|-------------------|--|
| Jan 17, 1993 | Orientation. |
| Jan 18 & 19, 1993 | To know the following <ol style="list-style-type: none">1. Symptoms of different pests.2. Some insect pests of plants and plant products.3. Living place, appearance and materials that they feed on.4. Different kinds of weeds.5. To distinguish the insects from spiders, ticks, mites, centipedes and millepedes.6. Different stages of insect development.7. Destructive insects like grasshopper, wood borers, aphids etc.8. Beneficial insects like honey bees, pllinators, predators etc.9. Innocuous insects like some flies, bugs and bees.10. Some of the insect orders. |
| Jan 20, 1993 | To get familiar with sprayers and dusters. <ol style="list-style-type: none">1. Parts of sprayers.2. How to take care of sprayers. |

3. Pesticide handling and safety.

Jan 21, 1993

Field trip to Sariab.

1. See some pest problems.
2. Visit the laboratories, insect collection, some pesticides and sprayers.

Jan 23, 1993

Lime sulphur preparation.

Jan 24, 1993

To get familiar with the following:

1. Destruction of plant debris, weeds and food resources of pests.
2. Natural factors like mountains, large water bodies and natural enemies.
3. Biological agents like predators, parasites.
4. Mechanical factors like screens, traps and barriers.
5. Physical factors like humidity, temperature and irregular irrigation.
6. Cultural practices like rotation, plowing, resistant varieties etc.
7. Need of pesticides to be used.
8. Importance of IPM program in pest control program, environmental pollution, human and animal health.

Jan 25, 1993

To get familiar with:

1. Different pesticide formulations like baits, granules , soluble powders, wettable powders, gases etc.
 - a. Advantages of formulations.
 - b. Disadvantages of some formulations.
2. Groups of pesticides and their toxicity rates.
3. Importance of labels on pesticide packages and containers.
4. Ways the pesticides get into the body.
5. Cover all and other facilities needed during pesticide mixing and application.
6. How and where to store pesticides.
7. What cares are needed when the pesticides spill.

Jan 26 & 27, 1993

Get familiar with the pests monitored in southwestern provinces.

1. Their life cycle.
2. Stages causing damage.
3. Control Programs.

Jan 28, 1993

Field trip to some orchards.

Jan 30, 1993

Review of the whole program, slides and video pictures.

Summary

In order to help the growers to reduce the amount of damage caused by major pests mentioned in the report it is important to take action on all the practical methods available and economical for the growers. To employ suitable pest management program at least 4 field staff at BS level, one for each province is needed to be hired. The field staff attending the course during January should make schedule to demonstrate the information to the growers where they are responsible to work. The growers in the selected areas should be encouraged to employ the control methods in a given period of time mentioned in the report.

Field staff should demonstrate the safe methods of mixing and spraying the pesticides. They also must demonstrate the safe way of using and caring for the sprayers.

Questionnaire related to pest problems in southwestern provinces of Afghanistan

Province: Oruzgan

Annex I

District: Chora

Interviewer: Pir Mohammad Siddiqi

Year: 1992

Date	Location	Extension Worker	Name of Grower	Type of Pest	Type of Crop infected	Year	Remarks
Nov. 7	Langar		Gul Ahmad	Black veined white butterfly	Almond, Apricot	30	Major serious damage
				Codling moth	Apple	17	Major serious damage
Nov. 7	Langar		Ghafar	Black veined white butterfly	Almond, Shakarpara	20-25	Major serious damage
Nov. 7	Langar		Abdul Mohammad	Black veined white butterfly	Almond, Shakarpara	20-25	Major serious damage
Nov. 7	Langar		Saleh Mohammad	Black veined white butterfly	Almond, Shakarpara	20-25	Major serious damage
Nov. 7	Srawala		Toty	Codling moth	Apple, Quince	10	Major serious damage
Nov. 7	Srawala		Mohammad Karam	Codling moth	Apple, Quince	10	Major serious damage
				Black veined white butterfly	Almond, Apricot Shakarpara	20	Major serious damage
Nov. 7	Shinya		Ziauddin	Black veined white butterfly	Almond, Apricot	25	Major serious damage
				Tent caterpillar	Almond, Apricot	03	Major serious damage
Nov. 7	Chermistan		Abdullah Khan	Black veined white butterfly	Almond and Shakarpara	30	Major serious damage

Questionnaire related to pest problems in southwestern provinces of Afghanistan

Province: Oruzgan

Annex I

District: Chora

Interviewer: Pir Mohammad Siddiqi

Year: 1992

Date	Location	Extension Worker	Name of Grower	Type of Pest	Type of Crop infected	Year	Remarks
Nov. 7	Chermistan		Mohammad Omar	Black veined white butterfly	Almond, Apricot shakarpara	30	Major serious damage
				Limb aphid	Same hosts	16	Major serious damage
				Lecanium scale	Same hosts	04	Minor
Nov. 7	Putan	Nasrullah Sarkateb		Black veined white butterfly	Almond, Apricot Shakarpara	25	Major serious damage
				Limb aphid	Same hosts	12	Major serious damage
				Round headed wood borer	Apple	10	Major serious damage
Nov. 7	Shpalugh		Amir Mohammad	Black veined white butterfly	Almond, Apricot Shakarpara	30	Major serious damage
				Limb aphid	Same hosts	10	Major serious damage
				Shot hole	Apricot	08	Moderate
Nov. 7	Shaplugh		Sardar Mohammad	Black veined white butterfly	Almond, Apricot Shakarpara	25-30	Major serious damage
				Limb aphid	Same hosts	15	Major serious damage
				Shot hole	Apricot	07	Moderate

Questionnaire related to pest problems in southwestern provinces of Afghanistan

Annex I

Province: Oruzgan

District: Chora

Interviewer: Pir Mohammad Siddiqi

Year: 1992

Date	Location	Extension Worker	Name of Grower	Type of Pest	Type of Crop infected	Year	Remarks
Nov. 7	Shapalugh		Mohammad Anwar	Black veined white butterfly	Almond, Apricot, Shakarpara	30	Major serious damage
				Limb aphid	Same hosts	16	Major serious damage
				Lecanium scale	Same hosts	04	Minor
Nov. 7	Shpalugh		Mir Hamza	Black veined white butterfly	Almond, Apricot Shakarpara	25	Major serious damage
				Limb aphid	Same hosts	12	Major serious damage
				Round headed wood borer	Apple	10	Major serious damage
Nov. 7	Lajer	Nasrullah Sarkateb		Black veined white butterfly	Almond, Apricot Shakarpara	30	Major serious damage
				Limb aphid	Almond, Apricot Shakarpara	10	Major serious damage
Nov. 7	Tughrak	Nasrullah Sarkateb		Same pest	Same hosts	30	Major serious damage
						10	Major serious damage
Nov. 7	Mianashin	Nasrullah Sarkateb		Black veined white butterfly	Almond, Apricot Shakarpara	30	Major serious damage
				Limb aphid	Same hosts	10	Major serious damage
Nov. 7	Khwajazor	Nasrullah Sarkateb		Same pests	Same hosts	30	Major serious damage
						10	Major serious damage

Province: Oruzgan

District: Khas Oruzgan

Interviewer: Pir Mohammad Siddiqi

Year: 1992

Date	Location	Extension Worker	Name of Grower	Type of Pest	Type of Crop infected	Year	Remarks
Nov. 8	Chakajuw		Abdul Ghafar	Black veined white butterfly	Almond, Apricot Shakarpara	10	Major serious damage
				Limb aphid	Same hosts	10	Major serious damage
Nov. 8	Kalatuk		Baridad	Same pests	Same hosts	10	Major serious damage
						10	Major serious damage
Nov. 8	Chakajuw		Zaquem Khan	Same pests	Same hosts	10	Major serious damage
						10	Major serious damage
Nov. 8	Sangar		Mullah Azizullah	Same pests	Same hosts	20	Major serious damage
						10	Major serious damage
Nov. 8	Sanger		Mullah Ghulam Sarwar	Black veined white butterfly	Almond, Apricot Shakarpara	30	Major serious damage
				Limb aphid	Same hosts	15	Major serious damage
				Tent caterpillar	Same hosts	03	Major serious damage
Nov. 8	Ashira		Abdul Karim	Same pests	Same hosts	30	Major serious damage
						10	Major serious damage
						03	Major serious damage
Nov. 8	Ashira		Dad Mohammad	Same pests	Same hosts	30	Major serious damage
						10	Major serious damage
						03	Major serious damage
Nov. 8	Ashira		Mohammad Ilyas	Same pests	Same hosts	30	Major serious damage
						10	Major serious damage
						03	Major serious damage

Questionnaire related to pest problems in southwestern provinces of Afghanistan

Province: Oruzgan

Annex I

District: Khas Oruzgan

Interviewer: Pir Mohammad Siddiqi

Year: 1992

Date	Location	Extension Worker	Name of Grower	Type of Pest	Type of Crop infected	Yr	Remarks
Nov. 8	Sayedan		Mullah Abdul Aziz	Black veined white butterfly	Almond, Apricot, Shakarpara	35	Major serious damage
				Limb aphid	Same hosts	12	Major serious damage
Nov. 8	Salehzai		Safar Mohammad	Black veined white butterfly	Almond, Apricot, Shakarpara	25	Major serious damage
				Limb aphid	Same hosts	10	Major serious damage
				Oriental wasp	Apricot, Shakarpara	16	Minor
Nov. 8	Sultan Mohammad Nawa		Haji Mohammad Jan	Same pests	Same hosts	30	Major serious damage
						10	Major serious damage
						15	Minor
Nov. 8	Hazar Qadam		Ghulam Dastagir	Same pests	Same hosts	30	Major serious damage
						15	Major serious damage
						15	Minor
Nov. 8	Shali Nawa		Abdul Qudus	Black veined white butterfly	Almond, Apricot, Shakarpara	30	Major serious damage
				Limb aphid	Same hosts	10	Major serious damage
Nov. 8	Shali Nawa		Abdul Qadir	Same pests	Same hosts	30	Major serious damage
						10	major serious damage
Nov. 8	Shali Nawa		Haji Ghulam Mohammad	Same pests	Same hosts	30	Major serious damage
						10	Major serious damage
Nov. 8	Shali Nawa	Nasrullah		Same pests	Same hosts	30	Major serious damage
						10	Major serious damage

Questionnaire related to pest problems in southwestern provinces of Afghanistan

Province: Oruzgan

Annex I

District: Gezab

Interviewer: Pir Mohammad Siddiqi

Year: 1992

Date	Location	Extension Worker	Name of Grower	Type of Pest	Type of Crop infected	Year	Remarks
Nov. 9	Gezab		Mahbob	Black veined white butterfly	Almond, Apricot Shakarpara	20	Major serious damage
				Limb aphid	Same hosts	10	Major serious damage
Nov. 9	Gezab		Jamaludin	Same pest	Same hosts	20	Major serious damage
						10	Major serious damage
Nov. 9	Gezab		Shahzada	Same pest	Same hosts	20	Major serious damage
						10	Major serious damage

Questionnaire related to pest problems in southwestern provinces of Afghanistan

Province: Kandahar

Annex II

District: Panjwai

Interviewer: Pir Mohammad Siddiqi

Year: 1992

Date	Location	Extension Worker	Name of Grower	Type of Pest	Type of Crop infected	Year	Remarks
Nov. 5	Gulbagh	Obaidullah		Limb aphid	Apricot, Plum Almond	4	Major serious damage
				Bark beetle	Plum	2	Minor
				Round headed wood borer	Apple	10	Major serious damage
				Gummosis	Apricot, Plum	5	Moderate
Nov. 5	Dehmor asai		Abdul Wahab	Powdery mildew	Vineyards	25-25	Major very severe damage
Nov. 5	Dehmor asai		Abdul Karim	Powdery mildew	Vineyards	10-15	Major serious damage
				Green aphids	Apricot, Peaches	15	Moderate
				White flies	Apricot, Peaches, Plum and Pomegranates	05	Major serious damage
Nov. 5	Gulbagh	Nasrullah Sarkateb	Amanullah	Limb aphid	Apricot, Peaches, Plum	5-6	Major serious damage
				Round headed wood borer	Apple	15	Major serious damage
				Gummosis	Peaches, Plum	07	Minor

Questionnaire related to pest problems in southwestern provinces of Afghanistan

Province: Kar dahar

Annex II

District: Shahrwalicot

Interviewer: Pir Mohammad Siddiqi

Year: 1992

Date	Location	Extension Worker	Name of Grower	Type of Pest	Type of Crop infected	Year	Remarks
Nov. 6	Joghtrak		Shadi Khan	Black veined white butterfly	Almond Apricot & Shakarpara	08	Major serious damage
				Limb aphid	Almond Apricot & Shakarpara	10	Major serious damage
Nov. 6	Joghtrak		Baridad	Same pests	Same hosts	08 10	Major serious damage Major serious damage
Nov. 6	Joghtrak		Amir Khan	Same pests + wood borer	Same pests Fig	08 10 04	Major serious damage Major serious damage Major serious damage
Nov. 6	Joghtrak		Karam Khan	Same pests	Same hosts	08 10 04	Major serious damage Major serious damage Major serious damage
Nov. 6	Borghona		Abdul Shakoor	Black veined white butterfly	Almond, Apricot & Shakarpara	10	Major serious damage
				Limb aphid	Almond, Apricot & Shakarpara	10	Major serious damage
				Round head wood borer	Fig	04	Major serious damage
Nov. 6	Sabzil		Fida Mohammad	Black veined white butterfly	Almond, Plum & Shakarpara	10	Major serious damage
				Limb aphid	Almond, Plum & Shakarpara	10	Major serious damage
Nov. 6	Sorkhbid		Ismail	Same pests	Same hosts	10	Major serious damage
						10	Major serious damage

Questionnaire related to pest problems in southwestern provinces of Afghanistan

Province: Kandahar

Annex II

District: Khakraiz

Interviewer: Pir Mohammad Siddiqi

Year: 1992

Date	Location	Extension Worker	Name of Grower	Type of Pest	Type of Crop infected	Year	Remarks
Nov. 10	Gabergai		Haji Shahzada	Black veined white butterfly	Almond, Plum Shakarpara	10	Major serious damage
				Lecanium scale	Almond	08	Minor
Nov. 10	Gabergai		Mohammad Haq	Same pests	Same hosts	10 08	Major serious damage Minor
Nov. 10	Torsikhir		Fazal Haq	Black veined white butterfly	Almond, Apricot Shakarpara	10	Major serious damage
				Limb aphid	Almond, Apricot Shakarpara	10	Major serious damage
Nov. 10	Torsikhir		Haji Mullah Bor jan	Same pests	Same hosts	10	Major serious damage
						10	Major serious damage

Questionnaire related to pest problems in southwestern provinces of Afghanistan

Annex II

Province: Kandahar

District: Dand

Interviewer: Pir Mohammad Siddiqi

Year: 1992

Date	Location	Extension Worker	Name of Grower	Type of Pest	Type of Crop infected	Year	Remarks
Nov. 11	Rambasai		Mauladad	Powdery mildew grape berry moth Mite webs	Vineyard Vineyard Vineyard	03 08 22	Major serious damage Minor Moderate
Nov. 11	Temorian		Abdul Ghafoor	Powdery mildew Berry moth	Vineyard Vineyard	03 11	Major serious damage Moderate
Nov. 11	Mashor		Mohammad Afzal	Same pests	Same hosts	03 17	Major serious damage Moderate
Nov. 11	Walakan	Rahmatullah		Powdery mildew Berry moth	Grape vine/bunches Vineyard	03 15	Major serious damage Moderate
Nov. 11	Soop		Fazal Mohammad	Powdery mildew Berry moth	Grape vine/bunches Grape berries	05 17	Major serious damage Moderate
Nov. 11	Soop		Mohammad Rasol	Same pest	Same hosts	05 17	Major serious damage Moderate
Nov. 11	Kokaran		Nadir Jan	Powdery mildew Aphids	Vineyard Pomegranate	03 17	Major serious damage Minor
Nov. 11	Kokaran		Mohammad Akram	Same pests oriental wasp	Same hosts Grape berries	03 17 20	Major severe damage Minor Moderate
Nov. 11	Kokaran		Shair Mohammad	Powdery mildew Aphids	Vineyard Pomegranate	03 17	Major serious damage Moderate
Nov. 11	Kokaran		Ghulam Rasol	Same pests	Same hosts	03 17	major serious damage Moderate
Nov. 11	Qazi Karaiz	Khan Mir		Powdery mildew Aphids Oriental wasp	Vineyard Pomegranate Grape fruit	03 20 10	major serious damage Moderate Minor
Nov. 11	Mondisar	Khan Mir		Powdery mildew Oriental wasp	Vineyard Vineyard, Kishmish Khana	03 10	Major serious damage Minor

Questionnaire related to pest problems in southwestern provinces of Afghanistan

Province: Kandahar

Annex II

District: Daman

Interviewer: Pir Mohammad Siddiqi

Year: 1992

Date	Location	Extension Worker	Name of Grower	Type of Pest	Type of Crop infected	Year	Remarks
Nov. 11	Khoshab		Sayed Amanullah	Powdery mildew Berry moth	Vineyard Grape berry	03 23	Major serious damage Minor
Nov. 11	Khoshab		Mohammad Ismaiel	Same pests	Same hosts	03 23	Major serious damage Minor
Nov. 11	Khoshab		Jan Mohammad Khan	Same pests	Same hosts	03 23	Major serious damage Minor
Nov. 11	Khoshab		Kamal Shah	Same pests	Same hosts	03 23	Major serious damage Minor

Questionnaire related to pest problems in southwestern provinces of Afghanistan

Province: Kandahar

Annex II

District: Arghandab

Interviewer: Pir Mohammad Siddiqi

Year: 1992

Date	Location	Extension Worker	Name of Grower	Type of Pest	Type of Crop infected	Year	Remarks
Nov. 12	Nagahan		Mohammad Nadir Shah	Powdery mildew Aphids	Vineyard Pomegranate	03 15	Major serious damage Moderate
Nov. 12	Nagahan		Mohammad Akram	Same pests	Same hosts	03 15	Major serious damage Moderate
Nov. 12	Charqulba	Malim Mohammad		Same pests	Same hosts	03 15	Major serious damage Moderate
Nov. 12	Charqulba		Haji Asadullah	Wood borer Aphids Shot hole	Apple, Apricot Pomegranate Apricot	17 23 15	Major serious damage Moderate Severe
Nov. 12	Jaza		Haji Abdul Qayoom	Aphids Fruit worm	Pomegranate Pomegranate	17 11	Major serious recently Moderate
Nov. 12	Sayedan Kalacha		Haji Allahdad	Aphids Fruit worm	Same hosts	12 10	Major serious damage Moderate
Nov. 12	Maranjan		Ali Mohammad	Same pests	Same hosts	12 10	Major serious damage Moderate

Questionnaire related to pest problems in southwestern provinces of Afghanistan

Province: Kandahar

Annex II

District: Maywand

Interviewer: Pir Mohammad Siddiqi

Year: 1992

Date	Location	Extension Worker	Name of Grower	Type of Pest	Type of Crop infected	Year	Remarks
Nov. 15	Sangsor		Akhtar Mohammad	Powdery mildew Berry moth	Vineyard Grape berry	03 17	Major serious damage Moderate
Nov. 15	Sangsor		Shah Wali	Same pests	Same hosts	03 17	Major serious damage Moderate
Nov. 15	Sangsor		Abdul Ali	Same pests	Same hosts	03 17	Major serious damage Moderate
Nov. 15	Sangsor	Abdul Qayoom		Same pests Aphids	Same hosts Pomegranate	03 17 12	Major serious damage Moderate Moderate
Nov. 15	Sangsor		Mohammad Sarwar	Powdery mildew Berry moth Aphid	Vineyard Grape berry Pomegranate	03 17 12	Major serious damage Moderate Major recently
Nov. 15	Sangsor		Mohammad Yousaf	Same pests	Same hosts	03 17 12	Major serious damage Moderate Recently

Questionnaire related to pest problems in southwestern provinces of Afghanistan

Annex III

Province: Helmand

District: Lashkargah

Interviewer: Pir Mohammad Siddiqi

Year: 1992

Date	Location	Extn. Worker	Name of Grower	Type of Pest	Type of Crop infected	Year	Remarks
Nov. 13	Lashkary Bazaar		Nadir Khan	Round headed wood borer Limb aphid Powdery mildew	Apple Peach Plum Apricot Vineyard	12 04 03	Major serious damage Major serious damage Major serious damage
Nov. 13	Lashkary Bazaar		Faizullah	Same pests	Same hosts	12 04 03	Major serious damage Major serious damage Major serious damage
Nov. 13	Lashkary Bazaar		Abdul Ghafar	Same pests	Same hosts	12 04 03	Major serious damage Major serious damage Major serious damage
Nov. 13	Lashkary Bazaar		Saleh Mohammad	Same pests	Same hosts	12 04 03	Major serious damage Major serious damage Major serious damage
Nov. 13	Kala Bust		Mohammed Siddiq	Round headed wood borer	Vineyard	03	Major serious damage
Nov. 13	Kala Bust		Allahudin	Same pests	Same hosts	03	Major serious damage
Nov. 14	Serkar		Abdul Razaq	Powdery mildew Round headed wood borer Limb aphid	Vineyard Apple Apricot	03 17 12	Major serious damage Major serious damage Major serious damage
Nov. 14	Serkar		Mohammad Tahir	Same pests White peach scale	Same hosts Plum	03 17 12 03	Major serious damage Major serious damage Major serious damage Minor
Nov. 14	Serkar		Haji Ahad	Round headed wood borer Limb aphid Powdery mildew	Apple Apricot, Plum Vineyard	17 15 03	Major serious damage Major serious damage Major serious damage
Nov. 14	Serkar		Haji Morad	Same pests White peach scale	Same hosts Plum	17 15 03 03	Major serious damage Major serious damage major serious damage Minor

Questionnaire related to pest problems in southwestern provinces of Afghanistan

Province: Zabul

Annex IV

District: Soory

Interviewer: Pir Mohammad Siddiqi

Year: 1992

Date	Location	Extension Worker	Name of Grower	Type of Pest	Type of Crop infected	Year	Remarks
Nov. 15	Boragai		Ncorullah	Lecanium scale Round headed wood borer	Almond Apple	08 18	Major recently serious major serious damage
Nov. 15	Boragai		Haji Naik Mohammad	Same pests	Same hosts	08 18	Minor recently serious Major serious damage
Nov. 15	Boragai		Aqa Mohammad	Same pests	Same hosts	08 08	Minor recently serious Major serious damage
Nov. 15	Boragai		Rahmatullah	Powdery mildew	Vineyard	03	Major serious damage
Nov. 16	Boragai		Atiqullah	Powdery mildew	Vineyard	03	Major serious damage
Nov. 16	Alwalgai		Haji Abdul Khaliq	Powdery mildew	Vineyard	03	Major serious damage

Questionnaire related to pest problems in southwestern provinces of Afghanistan

Province: Zabul
District: Sharisafa
Interviewer: Pir Mohammad Siddiqi

Annex IV

Year: 1992

Date	Location	Extension Worker	Name of Grower	Type of Pest	Type of Crop infected	Year	Remarks
Nov. 16	Gashi		Saleh Mohammad	Black veined white butterfly Lecanium scale Limb aphid	Almond Almond Almond	22 08 04	Major serious damage Major serious damage Major serious damage
Nov. 16	Gashi		Saleh Mohammad	Gummosis Dark brown spots on leaves Shrinkage leaves on young shoots	Almond Almond Almond	03 02 03	Minor Major serious damage Major serious damage
Nov. 16	Gashi		Mohammad Hassan	Same pests Pale yellow leaves	Almond Almond	Same years 03	Same range of damage Same range of damage
Nov. 16	Gashi		Mohammad Zahir	All above mentioned pests	Almond	Same years	Same range of damage
Nov. 16	Sanjet		Akhtar Mohammad	Black veined white butterfly Lecanium scale Limb aphid Gummosis	Almond Almond Almond Almond	22 08 04 03	Major serious damage Major serious damage Major serious damage Major serious damage
Nov. 16	Sanjet		Akhtar Mohammad	Dark brown spots on leaves Pale yellow leaves Shrinkage leaves on young shoots	Almond Almond Almond	02 03 03	Major serious damage Major serious damage Major serious damage
Nov. 16	Kakaran		Haji Payo	All same pest. Powdery mildew	Almond Vineyard	Same years 04	Same range of damage Major serious damage
Nov. 16	Multani		Abdullah	All above mentioned pests	Almond Vineyard	Same years 04	Same range of damage Same range of damage
Nov. 16	Babozai		Haji Samad	Black veined white butterfly Lecanium scale Limb aphid Gummosis	Almond Almond Almond Almond	22 08 04 03	Major serious damage Major serious damage Major serious damage Major serious damage
Nov. 16	Bobozai		Haji Samad	Dark brown spots on leaves Pale yellow leaves Shrinkage leaves on young shoots	Almond Almond Almond	02 03 03	Major serious damage Major serious damage Major serious damage
Nov. 16	Babozai		Haji Samad	Powdery mildew	Almond	03	Major serious damage
Nov. 18	Jakdak		Hamidullah	Powdery mildew	Vineyard	02	Major serious damage
Nov. 18	Jakdak		Malik Sardar	Powdery mildew	Vineyard	02	Major serious damage
Nov. 18	Jakdak		Mohibullah	Powdery mildew	Vineyard	02	Major serious damage
Nov. 18	Jakdak		Haji Mullah Kamal	Powdery mildew	Vineyard	02	Major serious damage

Questionnaire related to pest problems in southwestern provinces of Afghanistan

Annex IV

Province: Zabul

District: Sharisafa

Interviewer: Pir Mohammad Siddiqi

Year: 1992

Date	Location	Extension Worker	Name of Grower	Type of Pest	Type of Crop infected	Year	Remarks
Nov. 17	Shikhan		Mohammad Rahim	Black veined white butterfly lecanium scale Limb aphid Gummosis	Almond Almond Almond Almond	22 08 04 03	Major serious damage Major serious damage Major serious damage Major serious damage
Nov. 17	Shikhan		Mohammad Rahim	Dark brown spots on leaves Pale yellow leaves Shrinkage leaves on young shoots	Almond Almond Almond	02 02 03	Major serious damage Major serious damage Major serious damage
Nov. 17	Shikhan		Abdul Matin	All above mentioned pests	Almond	Same years	Same range of damage
Nov. 17	Shikhan		Haji Pacha	All above mentioned pests	Almond	Same years	Same range of damage
Nov. 17	Mukarak		Abdul Kabir	Black veined white butterfly Lecanium scale Limb aphid Gummosis	Almond Almond Almond Almond	25 15 06 05	Major serious damage Major serious damage Major serious damage Major serious damage
Nov. 17	Mukarak		Abdul kabir	Dark brown spots on leaves Pale yellow leaves Shrinkage leaves on young shoots	Almond Almond Almond	02 03 03	Major serious damage Major serious damage Major serious damage
Nov. 17	Mukarak		Haji Bismillah	All above mentioned pests	Almond	Same years	Same range of damage
Nov. 17	Petaw		Abdul Karim	All above mentioned pests	Almond	Same years	Same range of damage
Nov. 17	Petaw		Abdul Wahab	Black veined white butterfly Lecanium scale Limb aphid Gummosis	Almond Almond Almond Almond	25 15 06 05	Major serious damage Major serious damage Major serious damage Major serious damage
Nov. 17	Petaw		Abdul Wahab	Dark brown spots on leaves Pale yellow leaves Shrinkage leaves on shoots	Almond Almond Almond	02 03 03	Major serious damage Major serious damage Major serious damage
Nov. 18	Takir		Akhtar Mohammad	All above mentioned pests	Almond Almond Almond	Same years	Same range of damage

Data collection form for determination of population densities of black veined white butterfly, Limb aphids and Lecanium scale in the orchard under IPM program.

Province: _____

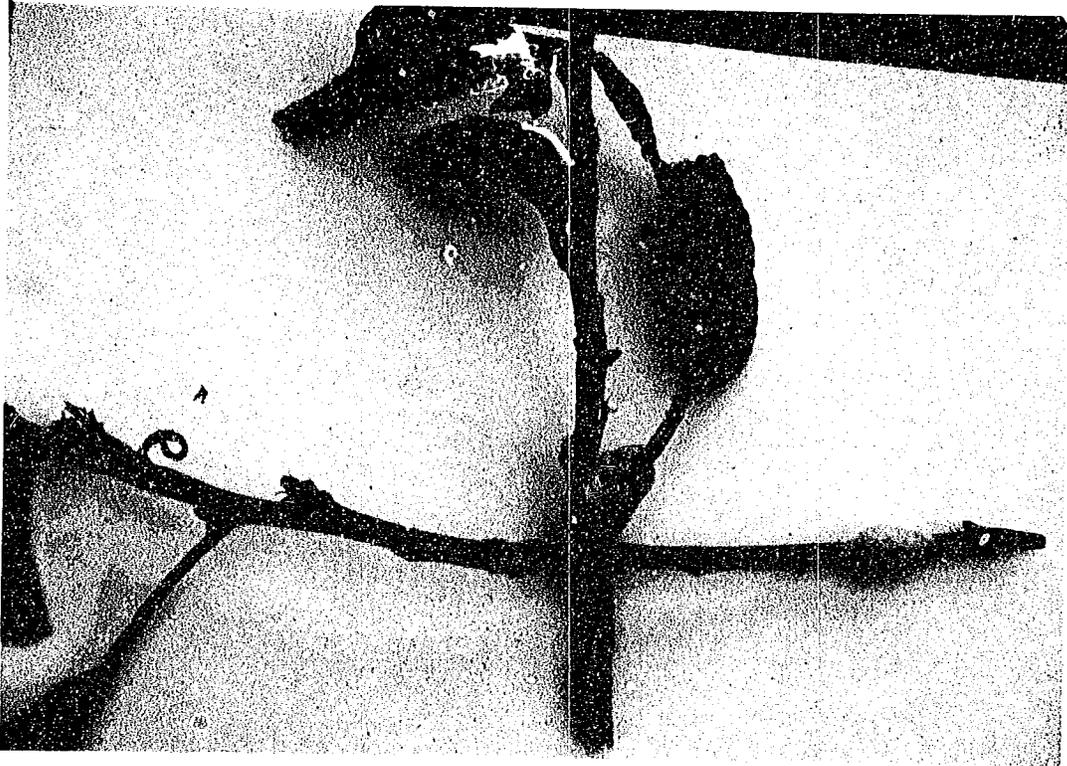
District: _____

MCI field staff: _____

Months	Black veined white butterfly			Colony appearance of limb aphids per three branches	Appearance of Lecanium scale per three branches	Treatments
	No. Larvae per three branches	No. Pupae per three branches	No. infected pupae per three branches			
April						
May						
June						
July						
August						
September						
October						
November						
December						
January						
February						
March						

- TREATMENT CODES:**
1. Spray program.
 2. Mechanical removal.
 3. Cultural (pruning).

Appendix A

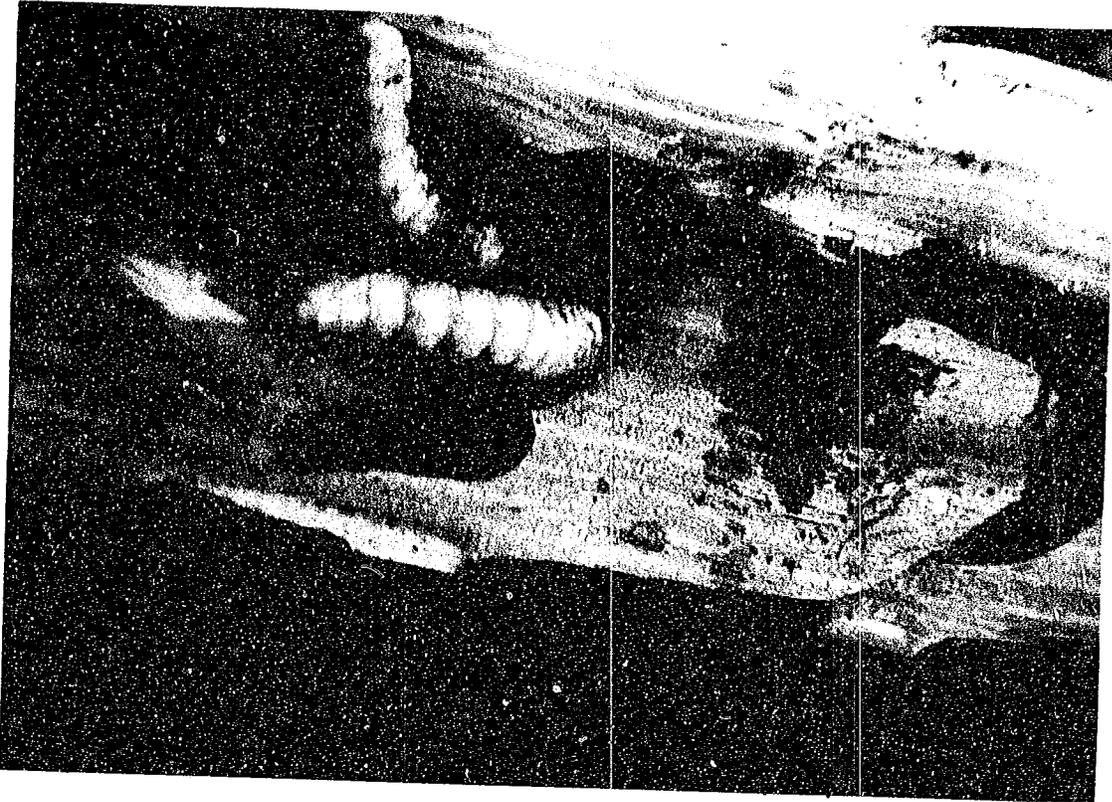


Black veined white butterfly
Egg cases

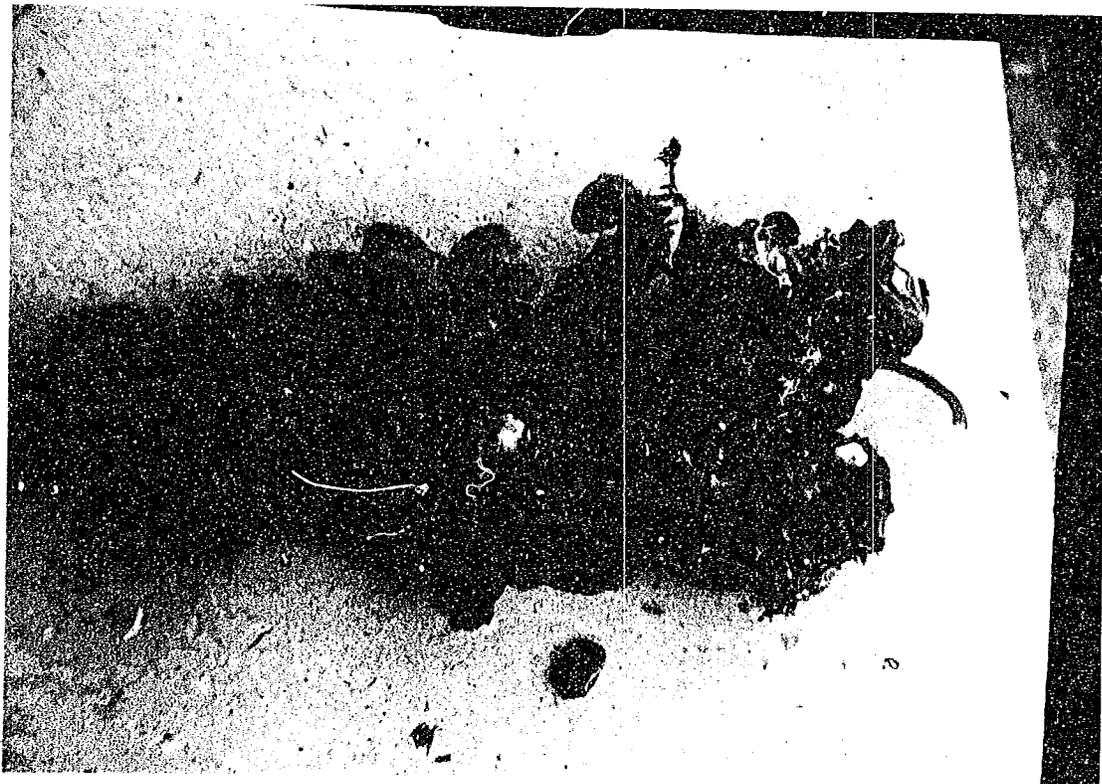


Black veined white butterfly
Pupal cases.

Appendix A

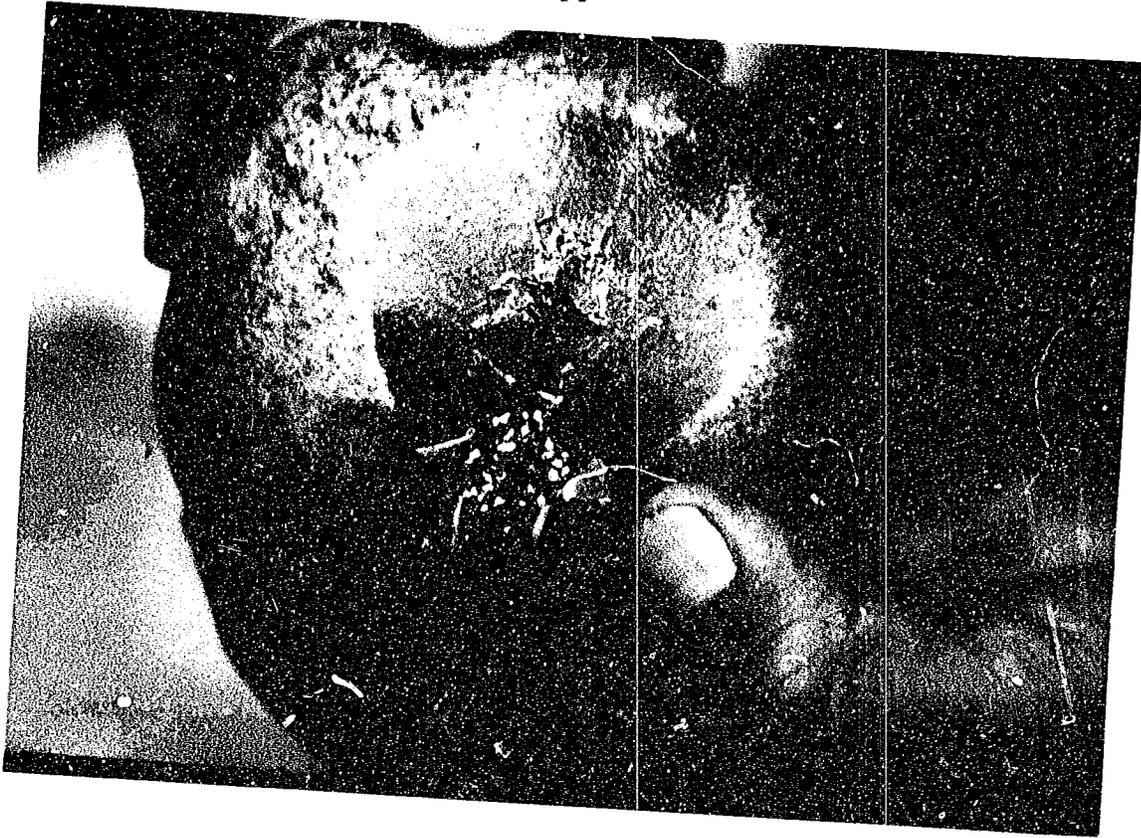


Round headed wood borer

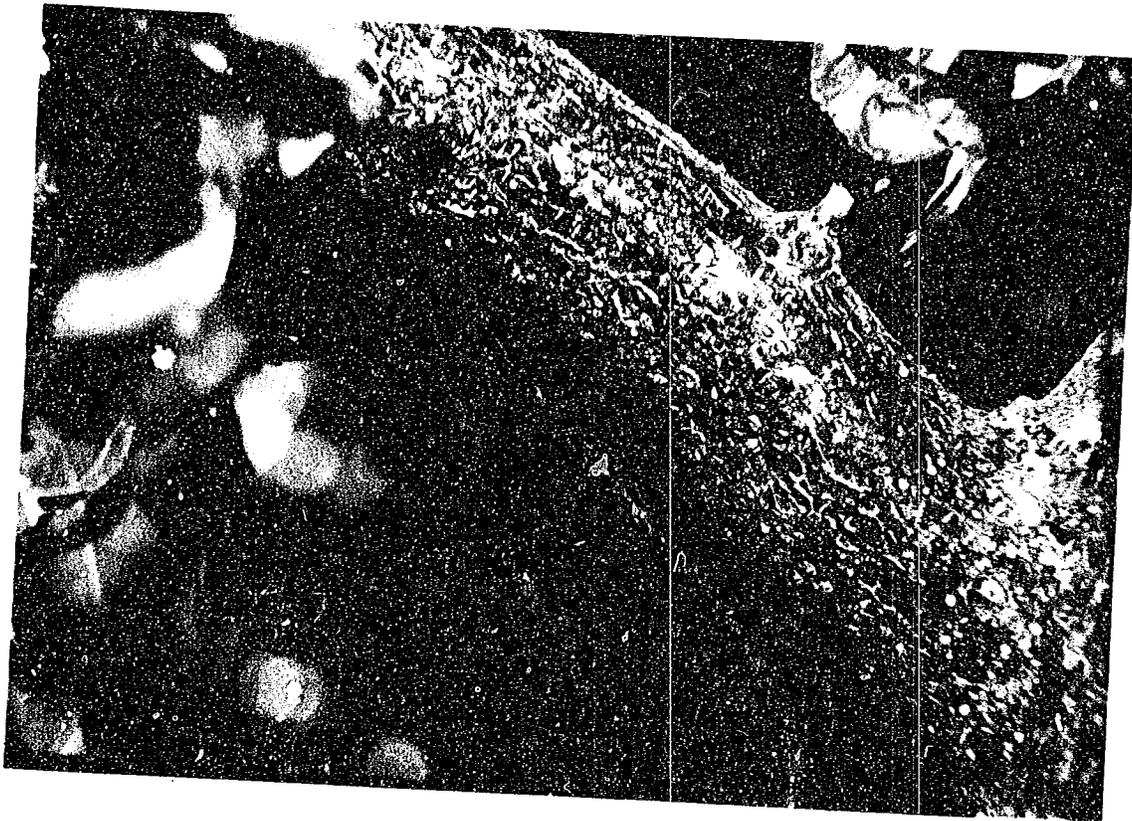


Grape berry moth infestation

Appendix A

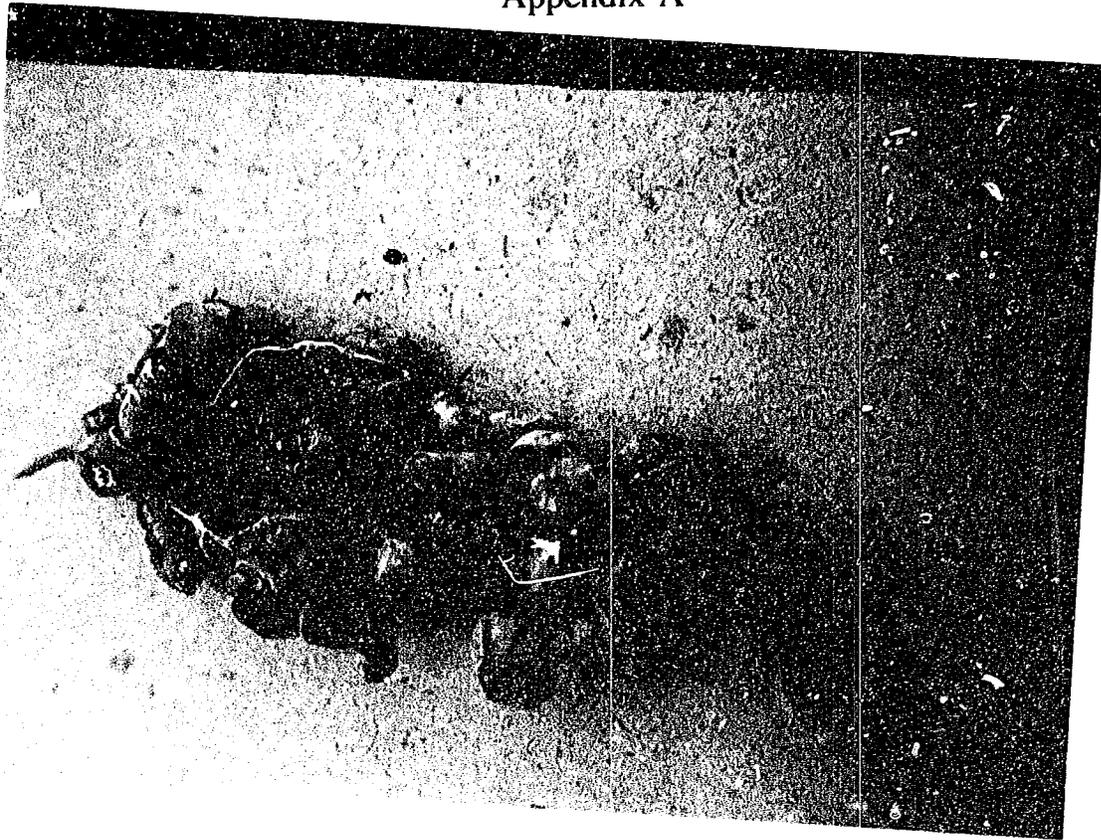


Pomegranate fruit worm



Limb aphids

Appendix A

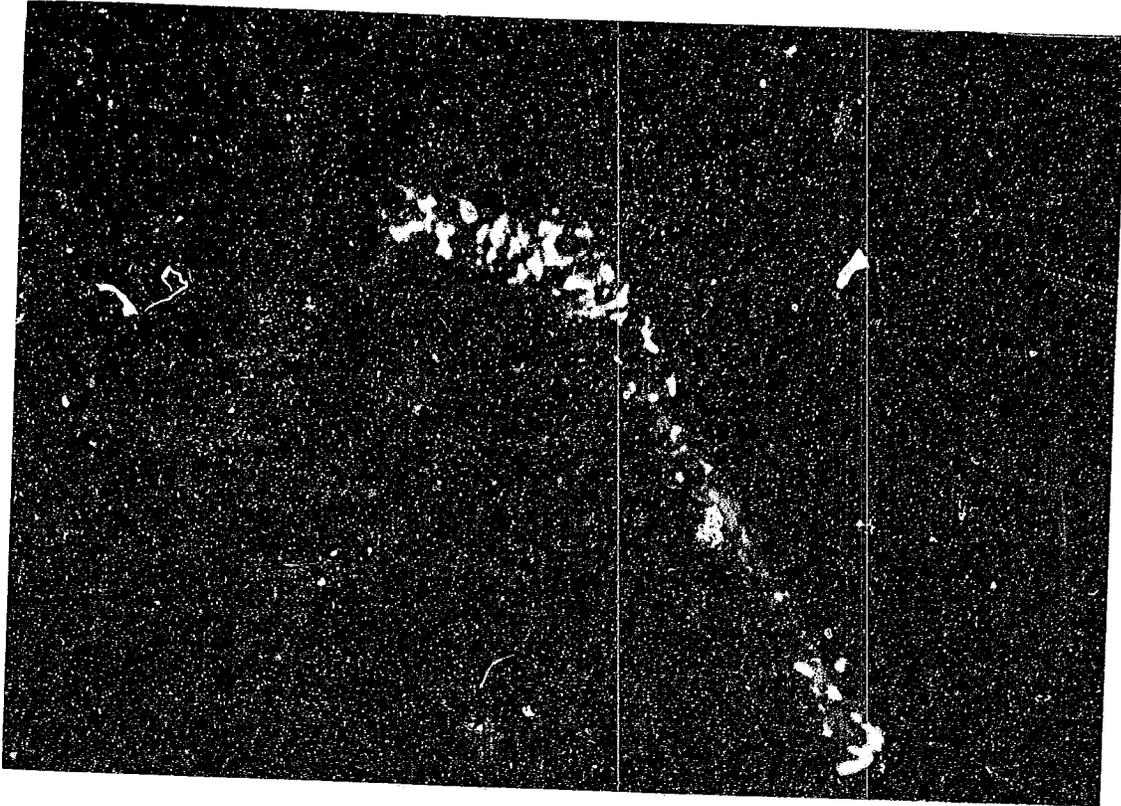


Powdery mildew

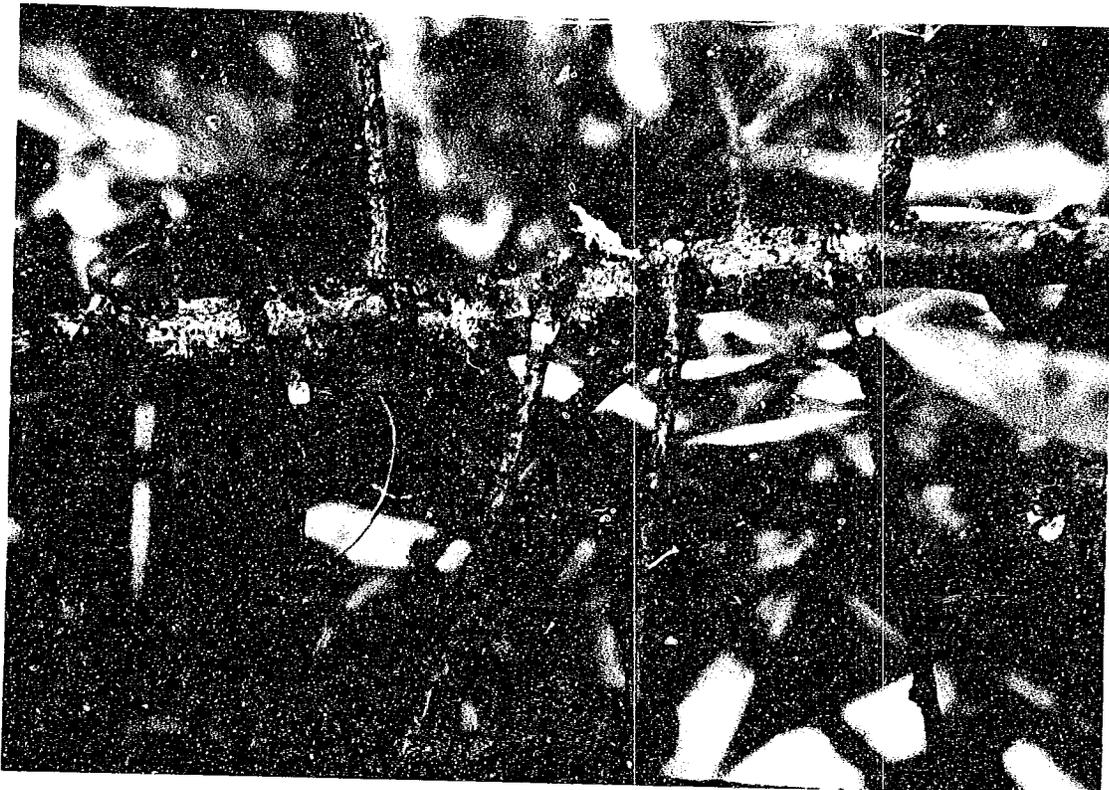


Gummosis

Appendix A



White peach scale

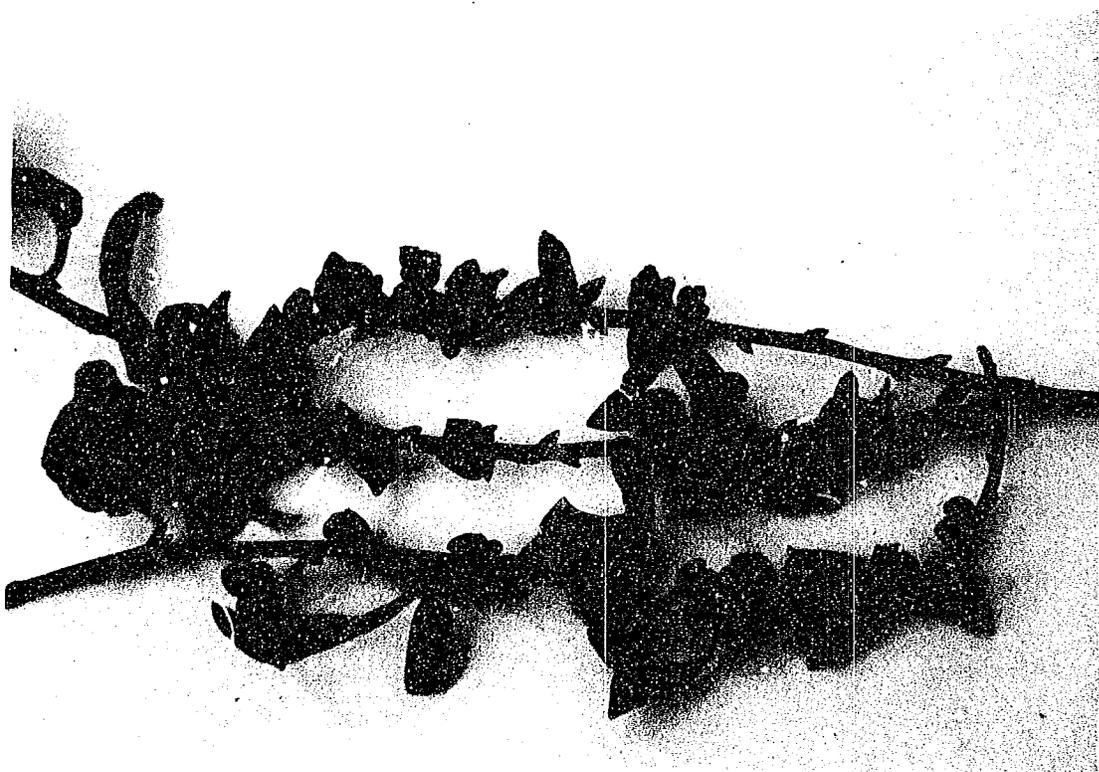


Lecanium scale

Appendix A



Dark brown spots on leaves



Shrinkage leaves on young branches

Appendix A



Limb aphids & Gummosis severe damage