IAO VEGETABLE TRAINING PROGRAM ON IMPROVED VEGETABLE PRODUCTION FOR THE VEGETABLE GROWERS OF ASHURAN

Report Prepared by:

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TABLE OF CONTENTS

INTRODUCTION:

Both regular and off season Vegetables are grown on most of the area of Union councils Balakot, Mankial, Kalam and Utror while in the union Councils Madyan, Bahrain and Beshigram, it is grown on large area. In Madyan/Kalam valleys, area under vegetables is 4200 Hectares. Off season vegetables grown are: peas,cabbage, French bean, squash, sweet pepper and turnip. In the union council Teerat, kharif vegetables are rarely grown.

Regular season vegetables grown are: Potato, peas, cucumber, onion.

Kalam Integrated Development project (KIDP) introduced cultivation of off season vegetables in tehsil Kalam and tehsil Bahrain which greatly improved the livelihood of the people of the area. Now these vegetables are grown on large area, but due to several factors, the farmers are getting very less yield and so very less income of their produce as compared to the potential yield. Due to worst law and order situation and the devastating flood of 2010, the farmers also have faced heavy losses during the last five years.

MAJOR REASONS FOR LOW YIELD OF THE VEGETABLE CROPS

- Less knowledge about high yielding varieties
- Poor quality seed
- Improper sowing
- Imbalance use of fertilizers
- Inefficient and unsafe use of pesticides
- Pests and diseases attack
- Improper irrigation
- Improper harvesting and packing
- Poor marketing

OBJECTIVES OF THE TRAINING:

- To train/facilitate the local vegetable growers in improved vegetables production, especially for demonstration in the demo. Plots of the project.
- To make them familiar with the new techniques of vegetables production

TARGETGROUP:

Progressive vegetable growers (under FSC membership) of villages Ashuran, Gahil and Kargolu

RESOURCE PERSON:

- **MR. SHAH ALAM(Agricultural Officer Madyan Swat, shahfst77@yahoo.com)**

METHODOLOGY:

The training program was conducted in the Hujra of Mr. Muhammad Nabiat Ashuranon Wednesday, April 30, 2014 in the afternoontime.Twenty fournumber of the vegetable growers (Members of the FSC Madyan) from the villages Ashuran, Gahil and Kargoluwere invited to the said program. Members of the Management Committee of the Farm Services Centre (FSC) Madyan were also participated in this training. Vegetables like cabbage, tomato, French bean, peas and cucumber are grown in these cluster villages. In the first session, the resource person briefed the farmersabout improved vegetable production techniques through multimedia presentation. In the second session, the farmers actively participated in group discussion. In the third and last session, farmer/beneficiary agreement forms were signed with the participants.

TRAINING CONTENTES

IMPROVED PRODUCTION TECHNOLOGY OF VEGETABLES:

- **LAND PREPARATION**: Field should be ploughed properly to ensure good crop
- **USE OF IMPROVED AND QUALITY SEED:** High quality, true to type seed should be used in order to obtain high yield and a uniform crop.
- **PROPER TIME AND IMPROVED METHOD OF SOWING:** The right time of sowing is largely determined according to the climatic condition of the area. Sowing should be done right in time and on improved techniques. The detail is as given in the table no. 1
- **BALANCED/REQUIRED DOZE AND EFFECIENT USE OF FERTILIZERS/MANURES:**

  Balance doze of fertilizers according to the requirements of the crop should be applied efficiently to the crop. The detail is as given in the table no. 1. The organic fertilizer like FYM should be well rotten. Fresh animal manure causes weeds problems. Moreover, in fresh manure, nutrients are not readily available to crops and can cause various pest and diseases attacks. The organic fertilizers should be well mixed with soil at the time of sowing to prevent losses of some nutrients and assuring the availability of all nutrients. All phosphorous containing fertilizers should be applied at the time of sowing as the leaching or mobility of phosphorous is very low to the root zones. Potash fertilizers can be applied on surface but the application at the time of sowing is preferable.Urea fertilizers should be applied in split doses. The crops should immediately be irrigated after surface application of fertilizer. Chemical fertilizers should be applied at suitable time. The use of nitrogenous fertilizer is discouraged in restorative crops.All the chemical fertilizers have different composition. The quality of organic fertilizers depends on composition and storage conditions. Compost making is the best method of

preparation of high quality organic fertilizers which is prepared from wastes of both plant and animal sources in a drench. Green manureingshould be practiced for enhancing fertility and texture of the soil. Crop rotation of restorative and exhaustive crops helps in maintaining the fertility of soil.

- **PROPER IRRIGATION:** Vegetables need more irrigation as compared to other crops. Keeping in view the climatic conditions, soil condition, kind of crop and stage of the crop, the irrigation should be managed. The irrigation interval should be reduced at the fruiting stage except tomato. Excess of irrigation results in losses of nutrients, delay maturity, spread diseases and unwanted excessive vegetative growth.

- **WEEDS CONTROL:** Weeds problem is one of the major reason of low vegetable production in this area. Weeds compete with the crop for food, water, space and light. Weeds causes spread of some pests and diseases. Weeds make the harvesting of crops difficult. There are three major methods of weeds control.

    1. Use of clean seed and irrigation water
    2. Use of well rotten farm yard manure.
    3. Intercultural and weeding
    4. Hand weeding
    5. Crop rotation

        for example: Potato-Pea/French bean

        Tomato-Cucumber/Squash

        Cabbage-French bean/pea

        Turnip- French bean/pea
    6. Use of weedicides

- **PEST / DISEASESAND THEIR MANAGEMENT:**

  Vegetables are more susceptible to the attacks of pests and diseases than other crops. Several measures should be kept in mind to protect crops form their attack:

    1. Use of good quality certified seed preferably treated.
    2. Resistant varieties to pest and diseases.
    3. Suitable time of sowing.

4. Proper manuring and irrigation.
5. Suitable method of sowing.
6. Timely weeds control.
7. Suitable stage of harvesting.
8. Proper packing, transportation and storage.

So, it is necessary for a vegetable grower to have some knowledge about the pests and diseases and about their proper control. The detail of main pests and diseases of the vegetables of the area is given in the table no.2. Pictures of some major pest and diseases are also given in the report.

- **PROPER HARVESTING**

The vegetable crops should be harvested at proper maturity. Harvesting of vegetable crops should be done by skilled people. Care should be taken during harvesting to minimize damage to both plant and produce. The stage of maturity of some vegetables varies from market to market. Early and late harvesting result in both loss of quality and weight. Delayed harvesting also impairs the production of crops. Delayed harvested crops can also be more affected by pest and diseases as compared to early harvested crops.

- **CLEANING AND GRADING**

The produce should be cleaned from dirt, soil, plant parts, diseased/damaged parts and graded into several grades. Graded produces pitch high price in the market.

- **PROPER PACKING, STORAGE AND TRANSPORTATION**

The cleaned and graded produce should be packed in suitable best quality packages. The packages should be attractive to consumers. The choice of packing varies according to the quality of produce and type of market. Most of the vegetables are perishable so, must be immediately marketed after harvesting. The harvested produce should be kept in cool and dry place before packing and marketing. If the market prices are low then the produce can be kept in cold storages. Care should be taken during transportation of the produce to avoid any damage. The preferred transportation for perishable vegetables is cool chain if available. Those perishable vegetables which are exported should always be transported through a cool chain.

- **MARKETING**

The vegetable producers should have knowledge of market information. They should have contacts of commission agents setting in the big markets. Farmers should market their produce by themselves through collective marketing. Cooperative farming should be started in the area.

Table no.1: Statement Showing detail information regarding the production technology of major vegetables grown in AO Circle Madyan/ vegetable project IAO area Swat

S. No	Kind of Vegetable	Seed required per kanal	Chemical fertilizers required (Kg)			Time of sowing	Row to row dist. (inch)	Row to row dist. (inch)	Time of harvesting	Farmer yield (Kg)	Potential Yield (Kg)
			DAP	Urea	Potash						
1	Potato	100 kg	12.5	12.5	12.5	April/May,AUG	24	9	AUG To NOV	500	1500
2	Peas	4 kg	-	12.5	6.25	Oct. to MAR, May to July	24	4	May toJune, AUG to NOV	400	800
3	Cabbage	50g	12.5	12.5	12.5	April to May	12	9	AUG to OCT	400	800
4	French bean	01 kg	-	12.5	6.25	April to July	12	6	June to OCT	200	400
5	Cucumber	30g	12.5	12.5	12.5	May to June	48	12	AUG to OCT	400	2000
6	Squash	30g	12.5	12.5	12.5	April to May	36	12	June to AUG	400	1500
7	Tomato	30-50g	12.5	12.5	6.25	April to June	36	12	July to NOV	300	2000
8	Onion	750g	12.5	12.5	12.5	SEP	6	4	July	700	3000
9	Turnip	100g	12.5	12.5	6.25	APR To May	-	-	June to SEP	700	2500

Table no. 2. Statement Showing major pest and diseases of major vegetables grown in AO Circle Madyan Swat

S. No	Kind of Vegetable	Insect and Pest	Disease	Recommendations for control
1	Potato	Cut Worm		Cypermethrine, chlorpyrifos, furadan granules at sowng, irrigaion, use of leaves grasses
		Wire worm		chlorpyrifos, furandan/carbofuran
		Leaf minor		Actamephrid, Imidacloprid, lembdacyahalothin,
		nematodes		furandan/carbofuran, crop rotation, disposal/removal of infected plants
			Late blight	Crop rotation, high fertility, more spacing, use of treated and healthy seed, spray of Intracol/ fosetylealuminium
	Potato		Leaf role	Crop rotation, use of certified or healthy seed, removal of infected plant from the

			virus	field
S. No	**Kind of Vegetable**	**Insect and Pest**	**Disease**	**Recommendations for control**
2	Pea	Pea moth, pod borer		Emamectin/ lambda cyahalothrin,
		Leaf Minor		Actamephrid, Imidacloprid, lembdacyahalothin,
			Powdery meldew	Use of resistant varieties, proper stalking, more spacing, weeds control, use of Nustar M/ susthaine ,spray of baking soda, sarf and mustard oil or lasi
			Fuzarrium wilt/ stem rot	Timely sowing, irrigation management, land selection, use of resistant varieties, spray of fosetylealuminium
3	Cabbage	Cabbage butterly		Emamectin/ lambda cyahalothrin,
		Caterpillars		Emamectin/ lambda cyahalothrin,
		Aphids		Acthrid, Imidacloprid,
			Damping up	More spacing, irrigation manegment, spray fosetylealuminium, level bed, well drainage
4	French bean	Thrips		Actamephrid, Imidacloprid, lembdacyahalothin,
		Cutworm		Cypermethrine, chlorpyrifos, furadan granules at sowng, irrigaion, use of leaves grasses
		Worm/ caterpilar		Emamectin/ lambda cyahalothrin,
		Mites		Spray of pyridabin/water
			Root rot	Earthing up in the morning or afternoon, no use of nitrogenous fertilizers, Timely sowing, irrigation management, land selection, Spray of fosetylealuminium, difenoconazol
4	French bean		Inthracnose	Crop Rotation, use of resistant varieties, Spray of difenoconazol
			Blight	Crop Rotation, use of resistant varieties, Spray of fosetylealuminium,l
5	Squash	Fruit Fly		Spread onion leaves in the field, use protein hydrolyzat, spray of tryclorpan
		Aphids		Actamephrid, Imidacloprid,
		Mites		Spray of pyridabin,/ water

			Stem rot	Timely sowing, irrigation management, land selection, spray of fosetylealuminium
			Powdery meldew	spray of Nustar M/ susthaine ,spray of baking soda, sarf and mustard oil or lasi
#	**Kind of Vegetable**	**Insect and Pest**	**Disease**	**Recommendations for control**
6	Cucumber	Apids		Actamephrid, Imidacloprid, ectara
		Fruit fly		Spread onion leaves in the field, use protein hydrolyzat, spray of tryclorpan
		Mites		Spray of pyridabin,/ water
			Blight	Crop Rotation, use of resistant varieties, Spray of fosetylealuminium,l
			Mozaik	Crop rotation, use of certified or healthy seed, removal of infected plant from the field
			Powdery meldew	spray of Nustar M/ susthaine ,spray of baking soda, sarf and mustard oil or lasi
7	Tomato	Apids		Actamephrid, Imidacloprid, ectara
		Caterpilers/ Fruit borer		Emamectin/ lambda cyahalothrin,
		Mites		Spray of pyridabin,/ water
		Fruit fly		Spread onion leaves in the field, use protein hydrolyzat, spray of tryclorpan
			Damping up	More spacing in nursery, irrigation manegment, spray fosetylealuminium, level raised nursery bed, well drainage
			Early/late blight	Crop rotation, high fertility, more spacing of plants, use of treated and healthy seed, spray of Intracol/ fosetylealuminium
			Leaf spot	Crop rotation, high fertility, more spacing of plants, use of treated and healthy seed, spray of Intracol/ fosetylealuminium
8	Onion	Caterpillars/ worms		Emamectin/ lambda cyahalothrin,
		Thrips		Actamephrid, Imidacloprid, lembdacyahalothin,
		Leaf minor		Actamephrid, Imidacloprid, lembdacyahalothin,
			Downy meldew	Crop Rotation, removal of infected leaves from the field after harvesting the crop, Spray of fosetylealuminium/metalexyl +mencozeb
9	Turnip	Catterpilars/ Worms		Emamectin/ lambda cyahalothrin,

Vegetables pest and diseases pictures:

aphids

bean anthracnose

Early blight

Cabbage worm

Bean curly top virus

Downy mildew of onion

potato curly top virus

Pea fusarium wilt

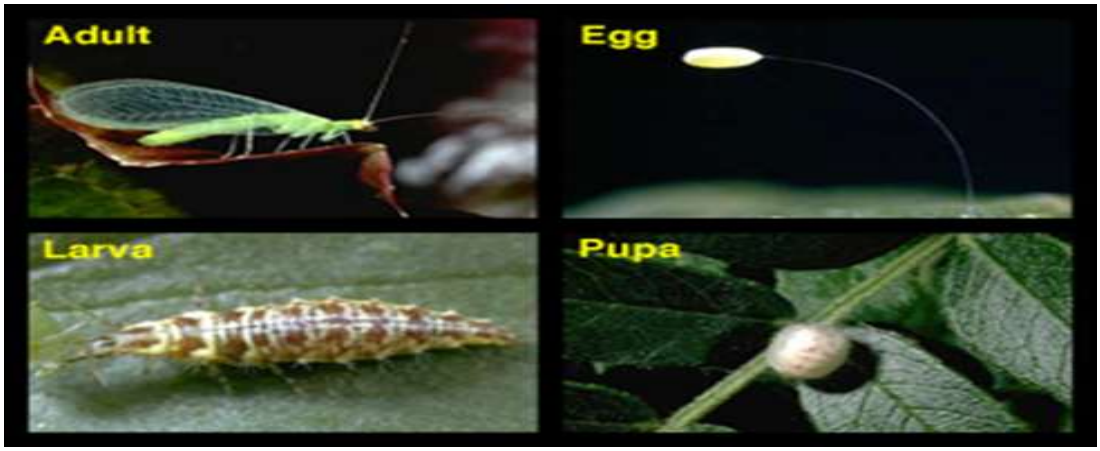
wire worm

Biological Control of vegetable Pests:

1. **Convergent lady beetle**

Scientific name: ***Hippodamiaconvergens***

2. **Green lacewings**

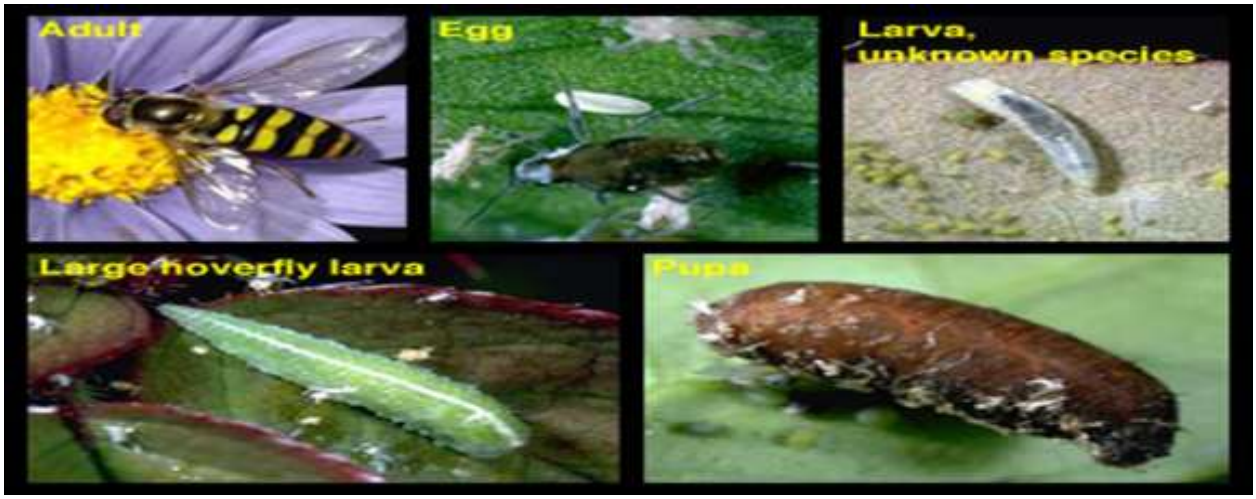


3. Braconcushmani

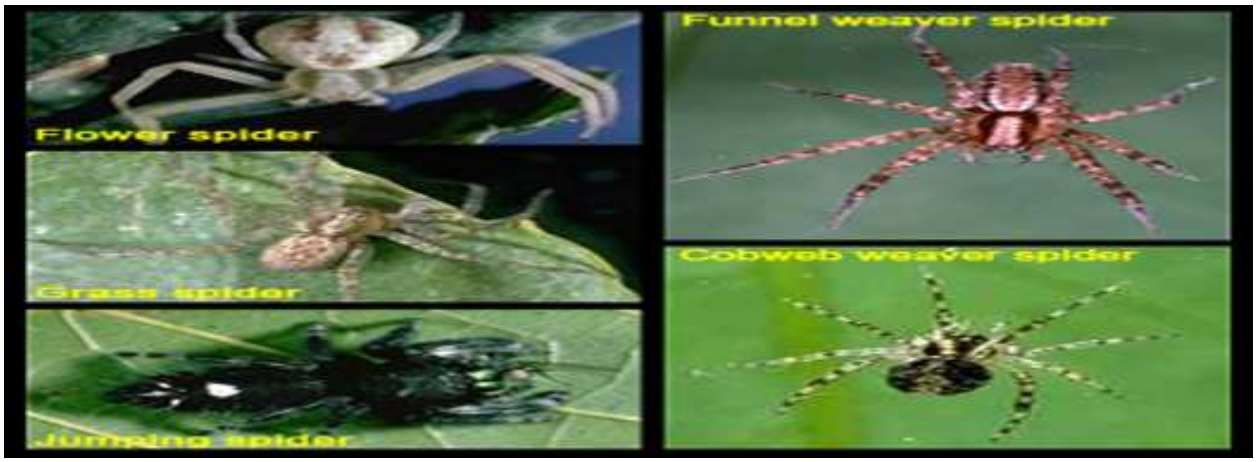
4. Trichogramma spp.

9. Praying mantids

10. Syrphid fly



11. spiders



FARMERS RESPONSE:

The farmers participated actively took a keen interest in thetraining. They learned about the modern improved farming techniques. They enjoyed the pictures of pests and diseases presented through multimedia. The pictures of the natural enemies associated with agro ecological environment amused the farmers a lot. Samples of some harmful insects and diseases were also presented to the participants. The topic they more enjoyed was the discussion about cooperative farming. All the farmers agreed to follow the advices of the agriculture extension especially in the vegetable demonstration plots of the projects.The farmers demanded for the supply of improved vegetable seed, pesticidesand fertilizers through farm services center. The farmers further demanded for the rehabilitation of farm to market roads.

CONSTRAINTS:

The participants identified some of the constraints:

1. High prices of quality agriculture inputs.
2. Lack of accessible market facilities
3. Lack of market information system
4. Small land holding
5. Poor irrigation system
6. Lack of availability of the quality seed in the area.
7. Adulteration and malpractices in the fertilizers have created an alarmingsituation in the whole region.
8. Lack of availability of the bio pesticides for the control of the pests.
9. Broad spectrum pesticides have adversely affected the biotic and abioticfactor of the environment.
10. Lac of quality packing materials for the competition in the local andInternational market.
11. Transportation problems from farm to market as poor condition of the farm to market road.
12. Lack of micro finance facility in the area.

RECOMMENDATIONS:

Agriculture is the only source of income of the majority of the people this area. Farmers are facing many problems in the farming. The farming community may be facilitated. One day training on the whole farming is not sufficient for the capacity building of the farmers. More training on vegetable farming are required and these trainings should conducted on village level Moreover, the farmers are facing more problems in marketing of their produce. So, IAO can play a vital role in marketing side. For the value addition of the vegetables, packing, processing, preservation and storage facilities can provided to the vegetable growers. Innovative farming can be introduced in this area and the most important is the strengthening of Farm Services Centre Madyan Swat. The farmers of the area should be organized in cooperative farming.The farmers could be facilitated in the export of off season vegetables produced in the area.


MERS TRAINING