2016

I.R. IRAN NATIONAL TRAINING OF TRAINERS WORKSHOP ON DESERT LOCUST SURVEY AND CONTROL OPERATIONS

28 January – 4 February 2016

Chabahar, I.R. Iran

Food and Agriculture Organization of the United Nations

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Rome, 2016

Trainers, participants and drivers in the I.R. Iran National Training of Trainers (ToT) Workshop on Desert Locust Survey and Control Operations held in Chabahar, I.R. Iran from 28 January to 4 February 2016.

Acknowledgements

The success of the workshop was attributed to the personal commitments of the Director of the Plant Protection Organization, the Head of Sistan & Baluchistan Jihad-e Agriculture Organization, the Head of Plant Protection Management for Sistan & Baluchistan Jihad-e Agriculture Organization, and the Head of Agricultural Management of Chabahar as well as the tireless efforts of their staff who provided support prior and throughout the workshop, of the Government of I.R. Iran for their financial support for this activity, and lastly due to the national Master Trainers and the participants who gave their best and worked very hard during each long day of the workshop.

I.R. Iran National Training of Trainers (ToT) Workshop on Desert Locust Survey and Control Operations

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Introduction

A national Training of Trainers (ToT) Workshop on Desert Locust Survey and Control Operations was organized in Chabahar, I.R. Iran from 28 January to 4 February 2016 in fulfilment of a recommendation made at the 29th session of the FAO Commission for Controlling the Desert Locust in South-West Asia (SWAC). The objective of the workshop was to train and identify potential Master Trainers who could be further trained by SWAC so they have the capacity to provide training to locust officers engaged in Desert Locust and Moroccan Locust operations. SWAC contributed USD 1 880 while the the Plant Protection Organization (PPO) covered the remainder of the workshop costs. Chabahar was selected as the venue of the workshop due to its proximity to typical Desert Locust habitat where breeding occurs during the spring in most years.

Participants

The PPO selected four participants who were Moroccan Locust officers from northern Iran and 13 Desert Locust officers from the southeastern provinces of Sistan & Baluchistan, Hormozgan and Kerman. Participants ranged in age from 33 to 49 years old with from 2 to 26 years of experience in PPO (Annex 1). Four participants had a M.Sc. degree while the remaining participants had a Bachelors degree. Two of the participants were unable to complete the workshop for personal reasons.

Preparation

The workshop was conducted by the Executive Secretary of SWAC, Keith Cressman, assisted by three national Master Trainers (Mahmoud Chalaki, Ali Babali, Mohammad Ahmadifar) and a PPO control expert (Payman Sayedin). Mr. Shirzad Behzadi provided simultaneous English/Farsi interpretation. The instructor and the trainers, assisted by PPO staff, spent three days prior to the workshop organizing the material and the classroom, checking the equipment, procuring last minute items in the local market, and setting up the demonstrations and exercises for the classroom and the field.

A meeting room at the PPO guesthouse in Chabahar was used for the classroom discussions and exercises. The opening and closing ceremonies were held in a large conference room at the same venue. Participants were organized in four groups of 4-5 individuals. The classroom was equipped with video projection, flip chart and whiteboard equipment. Outdoor demonstrations and exercises such as compass, GPS, eLocust3, foot pace measurement and ULV sprayer calibration were conducted in an open space at the PPO guesthouse. Field work was undertaken in a 5 km^2 area along the coast approximately 15 km east of Chabahar (30 minuets drive) that consisted of typical Desert Locust habitat of sandy plains, dunes and drying vegetation. This is where exercises were conducted on ULV spray swath width, survey and control.

Programme

The workshop was opened by Golamhossein Bamberi, Head of Agricultural Management of Chabahar, Golamhossein Temori, Head of Plant Protection Management for Sistan & Baluchistan Jihad-e Agriculture Organization, and Keith Cressman, SWAC Executive Secretary. The workshop followed the participatory learn-by-doing approach adopted by the FAO Locust Group since the early 1990s. The Desert Locust Master Trainer (DLMT) kit, provided to SWAC countries in 2008, was used during the workshop and lesson plans were modified and adopted for use accordingly. The workshop programme consisted of three days of training on Desert Locust biology, survey and reporting, three days on control and safety, and two days on teaching techniques (Annex 2). For the latter, each participant gave a 10-minute lesson on a specific topic that was video-taped and replayed to all participants as a means to identify individual strengths and weaknesses (Annex 3). Instruction on survey and teaching techniques was provided by Mr. Cressman while control was jointly presented by Mr. Cressman and the PPO control expert, Mr. Sayedin. A variety of approaches such as short explanations, hands-on demonstrations, exercises, and practice presentations were employed throughout the workshop. The programme consisted of four 1.5 hour sessions (0830-1000h, 1030-1200h, 1400-1530h, 1600-1730h). Only morning sessions were held on Friday. A typical day started with three to four trainees presenting their 10-minute practice lessons, followed by a short review of the material covered on the previous day. The day concluded with a brief overview of the following day’s programme. On the last day, each participant received a SWAC/PPO certificate and all training material and videos on a USB key during the closing ceremony from Mohammad Ali Baghestani, PPO Director, and Keith Cressman. The workshop was closed by Mohammad Ali Baghestani, Reza Najafi, Head of Sistan & Baluchistan Jihad-e Agriculture Organization, and Keith Cressman.

Evaluation

Pre- and post-examinations were administered as a means of measuring participant improvement in their knowledge of survey and control (Annex 4). The results indicated that everyone improved by 20-56%. Participants completed an evaluation form of the workshop and the instructors (Annex 5). The participants and PPO were satisfied with the workshop and appreciative of the efforts by the instructor and the Master Trainers.

Results

Each participant was systematically evaluated based on performance in survey, control and teaching. It became clear that Moroccan Locust officers were more knowledgeable than the Desert Locust officers. This may be attributed to the annual incidence of Moroccan Locust control operations compared to the infrequent occurrence of Desert Locust. This point was reflected in the five individuals who were identified as potential Master Trainers, of which three were Moroccan Locust officers and two were Desert Locust officers (Annex 6). One of the Moroccan Locust officers was the oldest of the participants; therefore, consideration should be given if it is worthwhile to invest further training in someone who may retire shortly. One of the Desert Locust officers was the youngest participant and the newest employee of PPO. Consequently, it will be necessary for this person to obtain more knowledge and experience on Desert Locust biology, survey and control. This reiterates the fact that experience field officers may not always be the best trainers. Only two of the five potential Master Trainers had a basic grasp of English. It is highly recommended that all five potential Master Trainers improve their knowledge of English so that FAO can provide additional training to these individuals and they can benefit from the DLMT kit.

Impact

The primary impact of the workshop was as a first step in strengthening PPO's capacity to provide training to its staff, both for Desert Locust and Moroccan Locust. As a result of the workshop, five potential Master Trainers were identified who should receive further training to be provided by SWAC.

Follow up

Several actions should take place as a means of following up the workshop and to strengthen further PPO's capacity to provide training.

1. PPO should designate up to five Master Trainers from those identified in the workshop;
2. Each Master Trainer should improve their English competency;
3. SWAC should provide additional training to the newly designated Master Trainers who have the necessary competency in English and computer, ideally, in a regional workshop organized by SWAC;
4. PPO should develop an annual training plan to train and retrain its entire field staff by organizing one workshop per year for Moroccan Locust officers and two workshops per year for Desert Locust officers in order to keep them updated on a regular basis. Funding should be provided by PPO while SWAC can cover one of the Desert Locust workshops. The workshops should be conducted by the three current Master Trainers and 3-5 of the new Master Trainers for up to 16 participants. The Deputy Technical Director of PPO should observe the initial courses to ensure high quality training is being provided and provided any coaching as necessary;
5. SWAC should consider replenishing the DLMT kit and provide additional kits and projectors as needed in each member country.

Annex 1. Workshop programme

General	Survey	Control	Training skills

Day/Date	Time	Module	Activities
Wednesday 27/1		Arrival of participants Setup by trainers	
Thursday 28/1	08:30-10:00	• Registration • Welcome and introductions • Participants' expectations • Programme overview • Pre-course evaluation	Registration forms Sketch your neighbor Ask & note on cards Classroom presentation Pre-course evaluation (survey + control)
		SURVEY SESSIONS	
	10:30-12:00	• Locust biology and behaviour	Q&A cards
	14:00-15:30	• Surveys: why, planning, who, when, where? • Different survey methods: foot, vehicle, aerial • Information collected during the survey: hopper densities	Classroom presentation + discussion Classroom presentation + discussion Hopper exercise
	16:00-17:30	• Desert Locust assessment and search surveys	Classroom presentation + magic pen exercise
Friday 29/1	08:30-10:00	• Training techniques and tips	Classroom presentation + discussion
	10:30-12:00	• Organizing and conducting training courses	Classroom presentation + discussion
Saturday 30/1	08:30-10:00	• Training practice sessions	3 trainees (10 min each)
		• Review of previous day • What equipment to take on survey	Q&A Classroom exercise (selecting equipment)
	10:30-12:00	• How to use compass & GPS • Measuring foot pace and using compass & GPS	Classroom presentation + demo Field demo + exercise
	14:00-15:30	• How to use a map	Classroom presentation + map exercise
	16:00-17:30	• How to use eLocust3	Classroom presentation, demo + practice
Sunday 31/1	08:30-12:00	• Survey techniques in practice	Classroom introduction + field mock survey
	14:00-15:30	• Review and analysis of mock survey • How survey results are used – early warning and forecasting	Team presentations + discussion Classroom presentation + discussion
	16:00-17:30	• Review of all survey sessions	Presentation + Q&A
		• Training practice sessions	4 trainees (10 min each)

CONTROL SESSIONS			
Monday 1/2	08:30-10:00	• Training practice sessions	3 trainees (10 min each)
		• The control process – a logical procedure • Different targets and control technology options - pros, cons	Classroom presentation + discussion Classroom presentation + discussion
	10:30-12:00	• Pesticides, formulations, biopesticides	Classroom presentation + discussion
	14:00-15:30	• Swath width exercise (hand-held) sampling spray and field equipment	Field practical
	16:00-17:30	• Counting drops, graphing deposition profiles	Classroom exercise
Tuesday 2/2	08:30-10:00	• Training practice sessions	3 trainees (10 min each)
		• Review of previous day • Track spacing to use and work rate • Droplet size & behavior	Q&A Discussion Classroom presentation + discussion
	10:30-12:00	• Good and bad ULV spraying conditions • Marking targets • Storage of pesticides, safety, toxicities, first aid	C9: classroom presentation + discussion C10: classroom presentation + discussion C3,3ii: classroom presentation + discussion
	14:00-15:30	• Types of sprayers and atomizers, and the spectrum they produce • VMD/NMD calculations	Classroom presentation + discussion C7: classroom presentation + discussion
	16:00-17:30	• Sprayer calibration and calculations	Classroom presentation, practical + discussion
Wednesday 3/2	08:30-10:00	• Training practice sessions	4 trainees (10 min each)
		• Review of previous day	Q&A
	10:30-12:00	• How to calibrate a sprayer	C8: field presentation + demo
	14:00-15:30	• Review of training practice sessions	Video + discussion
	16:00-17:30	• Review of training practice sessions (cont.)	Video + discussion
Thursday 4/2	08:30-12:00	• Mock spraying exercise – demarcating, spraying, monitoring	Classroom introduction + field practical
	14:00-15:30	• Analysis of the mock spraying exercise and data collected	Discussions and demonstrations
	16:00-17:30	• Review of all control sessions • Post-course evaluation • Course evaluation • Certificates and close	Presentation + Q&A Post-course evaluation (survey + control)

Annex 2. Workshop participants

Name	Job	Education	PPO years	Retire date	Age	Province	Pre-eval %		Post-eval %		Improvement %	
							survey	control	survey	control	survey	control
Ahmadi, Abbas	DL Officer	MSc Entomology	22	2026	48	Jiroft & Kahnuj	60	68	96	76	36	8
Bashandeh, Abdolhamid	DL Officer	BSc Agriculture	10	2036	37	Sistan & Baluchistan	68	40	76	80	8	40
Ebrahimi, Omid	**ML Officer**	**MSc Entomology**	**8**	**2038**	**39**	**Gilan**	**56**	**70**	**80**	**92**	**24**	**22**
Goldazehi, Mohammad	DL Officer	BSc Agriculture	20	2026	47	Sistan & Baluchistan	44	44	76	76	32	32
Hashemzadeh, Hossain	DL Officer	MSc Entomology	6	2040	37	Hormozgan	48	54	86	84	38	30
Kamali, Hossain	*DL Officer*	*BSc Agriculture*	*4*	*2042*	*38*	*Jiroft & Kahnuj*	44	50	-	-	-	-
Karimzaei, Abdolghani	DL Officer	BSc Agriculture	20	2026	45	Sistan & Baluchistan	56	52	68	78	12	26
Mashayekhi, Hamid	DL Officer	BSc Agriculture	13	2033	39	Jiroft & Kahnuj	50	40	80	78	30	38
Moghaddam, Mohammad Hanif	DL Officer	BSc Agriculture	8	2038	36	Sistan & Baluchistan	42	54	76	68	34	14
Nakhaei, Hamedaldin	ML Officer	BSc Agriculture	24	2036	40	Mazandaran	50	70	78	80	28	10
Naroei, Gol Mohammad	DL Officer	BSc Agriculture	25	2021	48	Sistan & Baluchistan	54	56	60	70	6	14
Ravandeh, Javad	*DL Officer*	*BSc Agriculture*	*10*	*2036*	*37*	*Sistan & Baluchistan*	64	64	82	72	18	8
Shadi, Afshar	**ML Officer**	**BSc Agriculture**	**26**	**2026**	**49**	**Golestan**	**68**	**68**	**-**	**-**	**-**	**-**
Shahsavari, Reza	**ML Officer**	**MSc Entomology**	**20**	**2031**	**45**	**Gazvin**	**46**	**50**	**84**	**88**	**38**	**38**
Shanbalak Jaski, Abbas	**DL Officer**	**BSc Agriculture**	**8**	**2038**	**38**	**Hormozgan**	**76**	**56**	**88**	**76**	**12**	**20**
Shodja Heidari, Ahmad Reza	**DL Officer**	**BSc Agriculture**	**2**	**2041**	**33**	**Jiroft & Kahnuj**	**40**	**52**	**82**	**92**	**42**	**40**
Sohrabzehi, Abdolsattar	DL Officer	BSc Agriculture	12	2034	39	Sistan & Baluchistan	64	40	78	88	14	48

potential MTs

DL = Desert Locust, ML = Moroccan Locust

withdrew from workshop

Annex 3. Topics for 10-minute practice training sessions

1. Desert Locust biology – Abdolhamid Bashandeh
2. What are the different types of surveys – Abdolghani Karimzaei
3. How to do survey assessment and search – Hamedaldin Nakhaei
4. How to make a foot transect – Abdolsattar Sohrabzehi
5. How to use a GPS – Mohammad Goldarzehi
6. How to read a map – Reza Shahsavari
7. How to use eLocust3 – Abbas Ahmadi
8. What equipment to take on a survey – Omid Ebrahimi
9. What information to collect during a survey – Gol Mohammad Naroei
10. Different sprayers for locust control – Abbas Shanbalak Jaski
11. What are the different pesticide formulations – Mohammad Hanif Moghaddam
12. What is ULV spraying – Hamid Mashayekhi
13. What is track spacing and how to determine – Afshar Shadi
14. How to mark a control target – Ahmadreza Shodja Heidari
15. How to calibrate a sprayer – Hossain Hashemzadeh

Annex 4. Course Assessment Desert Locust Survey

For each of the questions below, mark ONLY one box, unless the question asks you to mark more than one.

1. The minimum distance covered during survey by foot is:	❑ 10-50 metres ❑ 100-300 metres ❑ 500-1000 metres ❑ not limited
2. What is the most important information on vegetation cover to collect during survey?	❑ density and vegetation appearance ❑ species and vegetation appearance ❑ species and vegetation density
3. How do you count the locusts during vehicle transect?	❑ in front of the vehicle ❑ behind the vehicle ❑ on the right side of the vehicle ❑ on the left side of the vehicle
4. Latitude are lines from	❑ north and south of the Equator line ❑ east and west of the Greenwich line
5. When writing coordinates of location you should write first:	❑ you should write the latitude first ❑ you should write the longitude first ❑ does not make difference
6. Complete the sentence:	one degree is ………. metre or kilometre one minute is ……… metre or kilometre one second is ……… metre or kilometre
7. Complete the sentence:	number of nymph instars in solitary phase is ……...and number of nymph instars in gregarious phase is ……..
8. What is the depth in soil that the female lays eggs?	❑ 30 cm ❑ 100 cm ❑ 15 cm
9. How many egg pods does the solitarious and gregarious female lay?	❑ 2 in solitary and 1 in gregarious ❑ 3-4 in solitary and 2-3 in gregarious ❑ 5-6 in solitary and 3-4 in gregarious ❑ 5-6 in solitary and gregarious
10. What equipment is used to send survey and control information and data?	❑ eLocust ❑ tachometer ❑ hygrometer ❑ compass
11. How fast you should drive when making a vehicle transect?	❑ as fast as possible without damaging the vehicle ❑ about as fast as a man can run ❑ at a walking pace in low gear ❑ at the same speed as the wind is blowing
12. How many km should you drive during a vehicle transect?	❑ less than 1 km ❑ at least 1 km ❑ 5 km ❑ 10 km
13. How do you differentiate in the field between the gregarious hopper instars?	❑ by wing buds ……………………………………………………… ………………………………………………………………………….. ❑ by colour …………………………………………………………….. …………………………………………………………………………..
14. What is the most important information to collect during a survey regarding rainfall?	❑ date ❑ date and quantity ❑ date, quantity and time
15. If you are in a vehicle making a transect you should	❑ drive downwind and count the locusts more than once ❑ drive into the downwind so the locusts fly up and go behind you ❑ drive downwind so you do not run over the locusts ❑ not make a survey if the wind is blowing

16. What is the most important locust information to collect during survey?	❑ locust presence, appearance, behavior, density ❑ colour, nymph instar, density, laying eggs, gregarious ❑ number/km^2, mating, flying, appearance, ❑ locusts presence, behavior, hatching, density
17. Why should you not walk in the same direction as the wind during a foot transect?	❑ to avoid repeating in counting the same locust ❑ wind might cause some neck or back problems ❑ wind make dust in front of you and cannot see locusts ❑ it is not advisable to survey during dust storm
18. How long should you spend at a survey stop?	❑ 5 minutes ❑ 15-20 minutes ❑ 40 minutes ❑ one hour
19. When making a ground survey, how many of the locust infestations do you think you can find?	❑ none of the infestations ❑ less than half of all infestations ❑ more than half of all infestations ❑ all infestations
20. How many satellites are required in order to determine your location (but not your elevation)	❑ two ❑ three ❑ four
21. What do we mean by search survey?	❑ quick survey to have an idea of infestations ❑ survey along the main road ❑ detailed survey in a certain area of infestations and delimit for control ❑ survey of stops and undertake immediate control
22. What is the colour of mature gregarious Desert Locust?	❑ yellow ❑ pink ❑ yellow and black ❑ green
23. After a survey is completed, how frequent are survey reports sent?	❑ as quick as possible ❑ every week ❑ only when requested by the Locust Head Centre ❑ every month
24. What are the six most essential items to take with you in order to collect information on a survey?	❑ map, compass, notebook, pen/paper, net, hat ❑ compass, tent, pen/paper, survey form, radio, binocular ❑ map, compass, GPS, notebook, pen/paper, survey form ❑ pen/paper, map, compass, GPS, camping gear, radio
25. When arriving by vehicle to undertake a survey, where do you think Desert Locust will be found and how do you implement a survey?	❑ stay in the car and analyze the situation from the window ❑ walk 50 metres, check the soil, count locust in the bushes, measure temperature ❑ ask farmers of the presence of locust, rain fall last week, crop damages ❑ walk 200 metres, count adults, check for hoppers, check soil moisture and vegetation density and state

Annex 4. Course Assessment Desert Locust Control

For each of the questions below, mark ONLY one box, unless the question asks you to mark more than one.

1. What is the first thing a spray team should do when arriving at a hopper band target?	❑ start spraying straight away ❑ find the wind direction and strength ❑ measure the volume of pesticide in the tank ❑check whether the soil humidity is wet and vegetation is green
2. ULV spraying is useful for large scale control because	❑ it is safer than baiting ❑ it is faster and easier than other methods of locust control ❑ the hard work of survey is not required ❑ swarms will not land on the sprayed crops
3. If the wind speed is very high, experienced ULV spray operators should do the following:	❑ decrease the droplet size ❑ wear a dust mask when dusting ❑ reduce the height of the sprayer if possible ❑ increase the flow rate of the sprayer to improve the deposit
4. If there are big droplets in ULV spray, they will:	❑ fall down on the locusts and kill all of them ❑ fall close to the sprayer ❑ be carried away easily by the wind ❑ be the most concentrated and give a better kill
5. How many droplets will be produced if a 200 micrometer drop is broken into 100 micrometer droplets (i.e. half the size)	❑ 2 ❑ 4 ❑ 8 ❑ 100
6. What volumes of liquid are used in ULV spraying?	❑ 10-50 ml/ha ❑ 15-150 l/ha ❑ any volume –it depends on the type of pesticide ❑ 0.3-3 l/ha
7. Flow rate is increased/decreased with: (tick as many boxes as you want on this question).	❑ spray operator forward speed ❑ track spacing ❑ wind direction ❑ droplet size
8. Swath width is:	❑ the distance between the spray passes ❑ the wind speed during the spraying ❑ the amount of pesticide applied in the target area ❑ the distance downwind over which most of the pesticide is deposited
9. List four of the ULV pesticide characteristics:	❑ ………………………………. ❑ ………………………………. ❑ ………………………………. ❑ ……………………………….
10. Feature of safety precautions is high when spraying with vehicle mounted sprayer (e.g. Micronair) because:	❑ pesticide is not concentrated ❑ sprayer tank is filled through filter and use of funnel ❑ protective gears (overall, gloves, goggles) are used ❑ the sprayer is operated from the cabin of the vehicle
11. If the weather is very hot and the wind is changing a lot, ULV spraying should not be carried out because:	❑ the spray will be too concentrated ❑ the spray will be carried upwards by convection (hot air rising) ❑ the spray team will become too hot and have to find a tree for shade ❑ the water in the spray droplets will evaporate
12. When arriving in a new infested location in order to be treated you should be sure that: (tick as many boxes as you want on this question).	❑ locust mortality is more than 100% ❑ no convection ❑ wind speed is between 2-10 m/s ❑ no rainfall and not expected to rain in the coming few hours
13. What is a GPS (Global Positioning System) useful for?	❑ finding the locusts ❑ finding where you are ❑ safe use of pesticides ❑measuring the wind speed and humidity
14. If you see few locusts in the field, you should immediately…	❑ start control operations-timeliness is important ❑ try to find out more about the infestation ❑ inform the concerned department so that they can send aircraft ❑ bury them

15. On a sprayer it is useful to be able to: (tick as many boxes as you want on this question).	❑ adjust the droplet size ❑ adjust the emission height ❑ switch the sprayer on and off easily ❑ adjust the flow rate ❑ collect the spray so that flow rate can easily checked
16. What flow rate of bendiocarb used at a dose of 100g a.i/ha ULV 10% is required from a vehicle-mounted sprayer, moving at 10 km/hr using a 30 m track spacing?	❑ 400 ml/min ❑ 6 L/min ❑ 500 ml/ha ❑ 0.5 L/min
17. Estimate the cost (in US Dollar) of the following:	❑ ULV pesticide costs/liter are ……………………………………. ❑ spray aircraft costs/hour are ……………………………………. ❑ the purchase cost of a vehicle mounted sprayer ………………….
18. What are the advantages of bio-pesticides such as the *Metarhizium* fungal pathogen	❑ avoid the need for survey ❑ locating the breeding areas is easier ❑ makes control operations safer ❑ give better kill than conventional insecticides
19. Monitoring and recording control operations are important to:	❑ check the safety and efficiency of control ❑ keep an inventory of equipment ❑ improve the percentage locust kill ❑ keep vehicles operational
20. List 4 safety precautions which operators should take when carrying out locust control operations	❑ ………………………………. ❑ ………………………………. ❑ ………………………………. ❑ ……………………………….
21. Pesticide categorized by the World Health Organization as Class 1b are:	❑ highly hazardous ❑ extremely hazardous ❑ unlikely to cause hazard under normal use ❑ moderately hazardous
22. When working with aerial spraying aircraft, the pilot should decide	❑ when weather conditions are safe for flying ❑ where to spray ❑ what dose rate to apply ❑whether to do barrier or full coverage spraying
23. The area of locusts infestation which can be treated in one day with a vehicle sprayer is:	❑ 1 ha ❑ 10 ha ❑ 100 ha ❑1000 ha
24. The quality of spray is best (narrow droplet spectrum) from which type of atomizer?	❑ air blast nozzle, e.g. exhaust nozzle sprayer ❑ hydraulic nozzle, e.g. lever operated knapsack sprayer ❑ rotary atomizer, e.g. spinning disc sprayer ❑aircraft type sprayer
25. Write down two advantages of barrier spraying when compared with full coverage spraying	❑ ………………………………….. ❑ …………………………………..

Annex 5. Training course evaluation by participants

Numbers indicate responses; percent total in parenthesis

PRACTICALITIES	Very bad	Bad	Good	Excellent
Accommodation			6 (40%)	9 (60%)
Food and drink		1 (6%)	10 (67%)	4 (27%)
Training facilities			6 (40%)	9 (60%)
Course organization		2 (13%)	9 (60%)	4 (27%)
Social/leisure activities	4 (27%)	3 (20%)	2 (13%)	6 (40%)
DURATION	**Much too short**	**A bit short**	**A bit long**	**Much too long**
Length of the course			7 (47%)	8 (53%)
Daily schedule			7 (47%)	5 (53%)
INSTRUCTORS	**Weak**	**Average**	**Good**	**Excellent**
Knowledge			2 (13%)	13 (87%)
Ability to present material			3 (20%)	12 (80%)
Helpfulness			3 (20%)	12 (80%)
TECHNICAL CONTENT	**Weak**	**Average**	**Good**	**Excellent**
Survey modules		2 (13%)	4 (27%)	9 (60%)
Control modules		5 (33%)	6 (40%)	4 (27%)
Training modules			5 (33%)	10 (67%)
Field exercises		1 (7%)	2 (13%)	12 (80%)
Course notes		2 (13%)	7 (47%)	6 (40%)
Test at the beginning and end		1 (7%)	12 (80%)	2 (13%)
USEFULNESS	**Not at all**	**Only a little**	**Quite confident**	**Very confident**
How confident are you that you can apply the skills that you learned and the knowledge that you obtained when you return to your work?			7 (47%)	8 (53%)

Additional comments

- There were several suggestions that this type of training should be carried out every year.
- One participant was unhappy that FAO no longer provided financial incentives to attend the course.