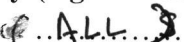


F.No.12014/04/2019-PP-I  
Government of India  
Ministry of Agriculture & Farmers Welfare  
Department of Agriculture, Cooperation & Farmers Welfare  
Plant Protection Division

Krishi Bhavan, New Delhi,  
Dated 29<sup>th</sup> May, 2020.

To

**Principal Secretary (Agriculture)**

State Government .....

**Sub:-** Advisory for Locust survey and control

Sir,

As you are aware, the desert locust is a migratory pest and has ability to fly hundreds of kilometres collectively. The swarms of desert locust moved into Rajasthan from Indo-Pakistan border. Due to Amphan cyclonic disturbance, the locust swarms are moving from west to east. The locust swarms and groups incursions have taken place in States of Rajasthan, Madhya Pradesh, Maharashtra, Gujarat, Punjab and Uttar Pradesh.

In India more than 2 lakh square kilometres area comes under Schedule Desert Area which is the summer breeding ground for Desert Locust. Locust Warning Organization and 10 Locust Circle Offices (LCO) of Government of India situated in Rajasthan and Gujarat undertake monitoring, survey and control of Desert Locust in Scheduled Desert Area in coordination with State Governments.

Since 11<sup>th</sup> April, 2020, locust hoppers and from 30<sup>th</sup> April, 2020 incursion of pink immature adults have been reported in bordering districts of Rajasthan and Punjab, which are being controlled by LCOs in coordination and collaboration with State Governments. Pink immature adult swarms entering from Indo-Pakistan border fly high and cover long distances during day hours from one place to another along with the westerly winds coming from the Pakistan side. Most of these pink immature adults settle on the trees during night and mostly fly during day. When the Locust are in flight during the day information about their locations are shared by the field functionaries and survey teams. Information in this regard is also received from farmers which are verified through field functionaries to district level officers. Control rooms are operational in district headquarters and LCOs offices for this purpose. When the Locust settle downs at night around 8 to 9 pm and its location is tracked and verified, the control operations are planned and executed jointly by LCOs and district agriculture officials in the early morning hours from 4 to 5 am on that particular location and goes on till the remaining population of Locusts take a flight. For such control operations, vehicle mounted ULV sprayers are deployed by LCOs, tractor mounted sprayers and fire tender vehicles are deployed by State Governments for spray of pesticides. Therefore, all preparations regarding deployment of spray vehicles have to be done late in the evening so that there is a good operation in the morning.

For effective control of locust beyond Scheduled Desert Areas, temporary control camps of LCOs have been established in Jaipur, Chittorgarh, Dausa in Rajasthan; Neemuch, Ujjain, Sheopur in Madhya Pradesh and Jhansi in Uttar Pradesh. Furthermore, in States of Madhya Pradesh and Maharashtra where small swarms and groups of Locusts have been located in some districts control operations have been undertaken by deploying tractor

mounted sprayers and fire tender vehicles for spray of pesticides to control the Locust population. The Central Integrated Pest Management Centres have been directed to closely liaison with States and provide them necessary technical inputs and sensitise State Agriculture Field Functionaries wherever Locust incursion has been reported.

Presently the Locust incursions are concentrated in the States of Rajasthan and some districts of Madhya Pradesh. In Uttar Pradesh presently only Jhansi and in Maharashtra only Amravati and Nagpur have reported some Locust presence and in all places control operations are being undertaken.

As per the FAO locust update situation dated 27<sup>th</sup> May 2020, successive waves of Locust invasions can be expected until July in Rajasthan with eastward across North India as far as Bihar and Orissa. The locust swarms in peninsular India during the onset of monsoon is a matter of great concern both for commercial crops and food crops. These movements will cease as swarms begin to breed and become less mobile. Swarms are less likely to reach South India, Nepal, and Bangladesh.

Considering the above situation, the States in the region may undertake the following steps -

- i. To orient and prepare the state agriculture field functionaries in coordination with the Central Integrated Pest Management Centres with regard to the standard operating procedure and contingency plan, for survey and control of Desert Locust. (Copies of which has also been e-mailed to the States).
- ii. Create a general awareness amongst the farmers and other stakeholders about Desert Locust incursions and its management.
- iii. Prepare and keep in readiness an inventory of tractor mounted sprayers and availability of recommended pesticides for control operations as and when required.

The Disaster Management Division of Ministry of Home Affairs has included the list of items and norms of assistance under SDRF and NDRF for Locust control (Copy enclosed). Further DO letter issued from Home Secretary to Chief Secretaries of all the states to facilitate the inter-state movement for locust control operation is enclosed for information. The list of chemical pesticides and its doses as approved by CIB&RC for locust control is enclosed for reference. For more details and advice, the following officers may be contacted- Dr. J P Singh, Joint Director: 09818836622, [locust@nic.in](mailto:locust@nic.in) and Dr. K.L.Gurjar, Deputy Director: 08383805684, [gurjar.kl@gov.in](mailto:gurjar.kl@gov.in).

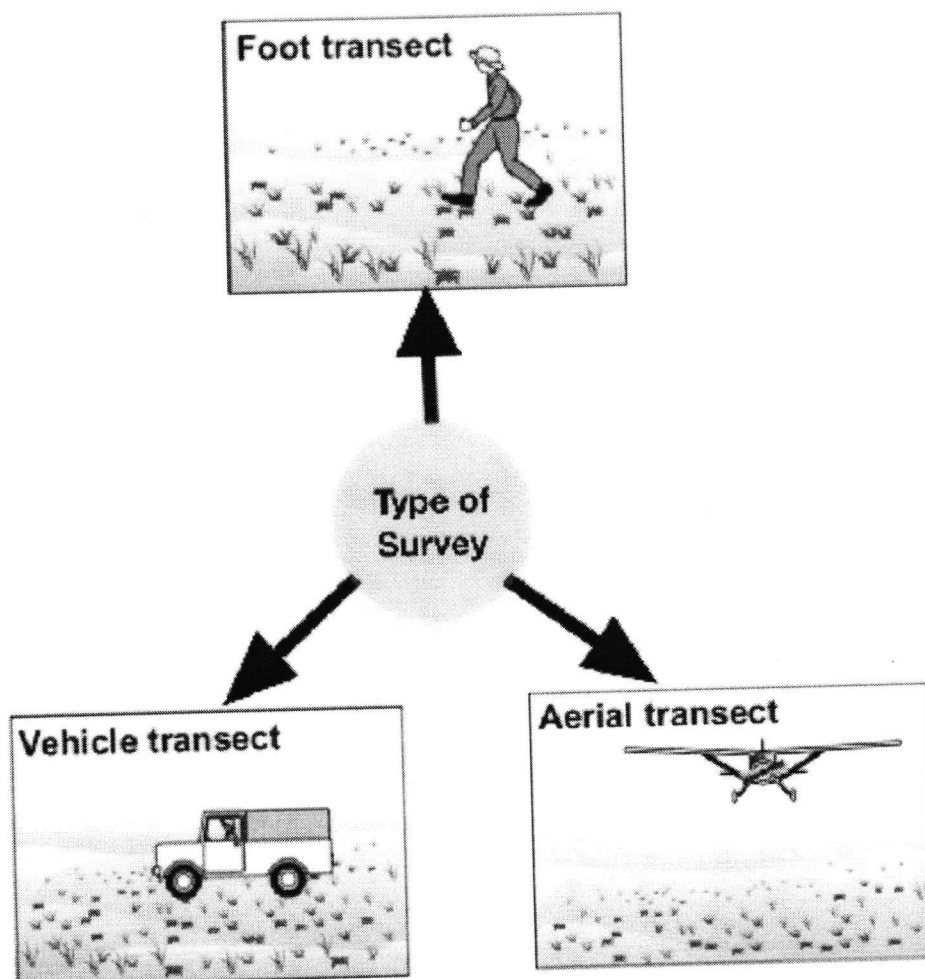
Yours faithfully,

  
(Atish Chandra)

Joint Secretary (PP)

Encl: As above.

# Standard Operating Procedures (SOP) for Desert Locust Ground Survey



**Government of India**  
**Ministry of Agriculture & Farmers Welfare**  
**Department of Agriculture, Cooperation and Farmer welfare**  
**Directorate of Plant Protection Quarantine & Storage**  
**LOCUST WARNING ORGANISATION**

# Standard Operating Procedures (SOP) for Desert Locust Ground Survey

## Survey process

A series of steps need to be followed before, during and after survey operations.

## Objective

The objective of the Standard Operating Procedures (SOP) for Desert Locust Survey is to give concise instructions for effective and safe ground survey operations against the Desert Locust. These instructions are intended for use by the field staff who are involved in Desert Locust monitoring to help them avoid dangerous, ineffective or wasteful operations. They are based on the **FAO Desert Locust Guidelines** where more detailed information and references are available.

### The instructions focus on:

- Survey equipment
- Survey types and methods
- Data collection and reporting
- Using eLocust3 & eLocust3m

### PREPARATIONS before three months survey operations

- Determine what type and number of vehicles are required for survey operations
- Select competent survey teams and provide them with training or refresher training
- Check and service the vehicles
- Check that the commonly needed spare parts and spare tires are available.
- Make sure that operational funds are allocated for the proposed survey period in the field to cover field allowances, fuel, etc.
- Make sure that sufficient equipment (GPS, eLocust3, compass, maps) are available for each survey team
- Ensure that enough copies of the *FAO Locust Survey & Control Form* are available

### BEFORE survey operations

- Based on information from all possible sources (nomads, locals, villagers, travellers) combined with rainfall and habitat data, determine what areas need to be surveyed and when. The Locust Information Officer should provide this information.
- Use maps to help determine the planned survey route.
- Prepare the vehicles and make sure that all field and communication equipment are working. Set the GPS coordinates to degrees, minutes and seconds.
- Ensure that survey officers know how to use the equipment and make surveys.
- Decide what type of survey. If you do not know if locusts are present or not, make a rapid *assessment* survey. If significant locust populations are already present, then



make a *search* survey to estimate the total infested area and delimit the areas that require control.

### **DURING survey operations**

- Go to an area where locusts are likely or already known to be present and make either a foot or a vehicle transect.
- Before starting the foot or vehicle transect, record the date and the GPS latitude/longitude coordinates on the *FAO Locust Survey & Control Form* or in eLocust. This is usually done inside the vehicle.
- If you are making a foot transect, get out of the vehicle and collect data about locusts, vegetation and soil. If you are making a vehicle transect, stay in the vehicle and collect data about locust adults and vegetation.
- Return to the vehicle (or stop if you made a vehicle transect) and record your observations on the *FAO Locust Survey & Control Form* or in eLocust.
- Drive to the next survey area.

### **AFTER survey operations**

- Check that all of the relevant details are on the *FAO Locust Survey & Control Form* or in eLocust.
- Submit the completed forms or eLocust file to the National Locust Unit HQ.
- Check and, if necessary, repair the equipment so it is ready for the next survey.

## **Survey team and field equipment**

**Survey Team:** One locust officer, one driver and vehicle. Use two vehicles in remote areas.

**Equipment:** to be available for each team:

- eLocust3, eLocust3m
- Hand-held GPS
- Maps
- Compass
- FAO forms
- Clipboard, paper and pen, tally counter
- Hand lens (x10)
- Sweep net, Dissecting kit, cage
- Sample boxes tool kit
- First aid kit

## **Where and when to make surveys**

### **Where**

- In sandy areas where the natural vegetation is green
- Desert areas that have received recent rainfall
- Areas where locals report that locusts are present
- Areas previously infested by locusts or where control was carried out

- Areas that could receive locusts from neighbouring countries

## When

### During the year

- Regularly during the rainy season
- About two weeks after rain has fallen (to allow sufficient time for the vegetation to become green)
- If there is no information from a certain area about rainfall, ecological conditions or locusts

### During the day

- When temperatures is 20-38°C
- From shortly after sunrise to about midday
- In the afternoon for a few hours just before sunset

## Survey types

### Assessment

- Generally the first type of survey undertaken in the field to determine if locusts or green vegetation are present
- Undertaken in areas that have a history of locusts or breeding, where rain has recently fallen, or where nomads, locals, scouts, farmers or agricultural extension agents have reported locusts
- Purpose is to monitor the locust and habitat situation and to determine whether significant populations are present that may require control

### Search

- If significant populations are found during an *assessment* survey, then a *search* survey should be undertaken
- An intensive survey to estimate the total infested areas and to delimit the areas that require control
- From the results of search surveys, the scale of the risk and level of required control can be estimated

## Survey methods

### Foot transect:

- Walk about 300 m into the wind or crosswind Observe the vegetation greenness and density Stop several times to check the soil moisture
- Count any locust adults that fly up, note their colour, behaviour and maturity (estimate the width of the strip in which adults are being disturbed, usually about 1-4 m on either side of you).  
**Temperature must be above 20°C**
- Stop occasionally and closely inspect the ground and vegetation for hoppers, noting what instar stage, colour, behaviour and number per bush or square metre. Repeat this up to 10 times
- Return to the vehicle and record your observations on the survey form or in eLocust3 or eLocust3m.
- Drive to the next survey stop

**Vehicle transect:**

- Drive upwind or crosswind for at least 1 km Drive at a walking pace in low (4WD) gear Count adults that fly up in front of the vehicle.
- Count only when temperature is above 20°C and wind speed is less than 6 m/s

**What information to collect**

- Location
- Name
- Date
- GPS latitude and longitude coordinates

**Rainfall**

- Date and amount of last rainfall

**Vegetation**

- Greenness and density

**Soil**

- Wet or dry

**Locust**

- Presence/absence
- Appearance (*solitary, transiens, gregarious*)
- Behaviour (*isolated, scattered, groups*)
- Maturity (*instar, fledgling, immature, mature*)
- Breeding (*copulating, laying, hatching, fledging*)
- Density and size (*locusts/transect (lxw) or /m<sup>2</sup>; No. ha*)

**Control**

Insecticide, application rate, quantity used, area treated

**Comments**

last time locusts were present; crop types or stages, etc.

## How to record data

Survey data and observations can be written down on the *FAO Survey & Control Form* (or similar form) or they may be entered into a handheld tablet using a custom program called eLocust3

### Survey form

- Data from six survey stops can be entered on one *FAO Survey & Control Form*
- If you make more than six stops, use additional forms
- Enter the data from the survey stop before moving to the next location

### eLocust3

- the eLocust system is the tool used by national survey and control officers in all locust affected countries for recording field observations during survey and control operations. eLocust3 is based on a hand-held tablet, into which users log details about habitat, vegetation, soil, rainfall, locusts, control and safety before transmitting the data in real time by satellite to that country's National Locust control centre (NLCC). All frontline countries affected by Desert Locusts have a centralised NLCC, responsible for monitoring their territory. Data from each country is collated into a single file and sent by email on a daily basis to the Desert Locust Information service (DLIS) at FAO Headquarters in Rome.
- Information from an unlimited number of survey stops can be entered into eLocust3
- Enter the data and send from the survey stop before moving to the next location



### eLocust3m

PlantVillage has developed elocust3M app in conjunction with FAO. The app is effective in collecting data on locations and stages of desert locust. This information is used to determine the nature of intervention to employ; hand spraying, vehicle or aerial.

elocust3M app available on google play store to conduct locust surveys so as to help the government control this pest.

User having an android mobile phone can download and install elocust3 app by using following link.

[https://play.google.com/store/apps/details?id=plantvillage.locustsurvey&hl=en\\_US](https://play.google.com/store/apps/details?id=plantvillage.locustsurvey&hl=en_US)



# Coronavirus: Safety Tips for You



**Follow these steps to help keep you and others safe:**

**Stay home** if you can and avoid any non-essential travel. Avoid social gatherings of more than 5 people.

**Practice social distancing** by keeping at least 6 feet — about two arm lengths — away from others if you must go out in public. Stay connected with loved ones through video and phone calls, texts and social media. Avoid close contact with people who are sick.

**Wash your hands often** with soap and water for at least 20 seconds, especially after being in a public place, or after blowing your nose, coughing or sneezing. If soap and water are not readily available, use a hand sanitizer with at least 60% alcohol.

**Avoid touching your eyes, nose and mouth** with unwashed hands.

**Clean and disinfect household surfaces** daily and high-touch surfaces frequently throughout the day. High-touch surfaces include phones, remote controls, counters, tabletops, doorknobs, bathroom fixtures, toilets, keyboards, tablets and bedside tables.

**Cover your coughs and sneezes.** Use a tissue to cover your nose and mouth and throw used tissues in a lined trash can. If a tissue isn't available, cough or sneeze into your elbow — not your hands. Wash your hands immediately.

**No. 33-08/2020-NDM-I**  
 Government of India  
 Ministry of Home Affairs  
 (Disaster Management Division)

'C' Wing, 3<sup>rd</sup> Floor, NDCC-II,  
 Jai Singh Road, New Delhi,  
 Dated 27<sup>th</sup> May, 2020

To  
 The Chief Secretaries  
 (All States)

**Subject: List of Item and Norms of assistance under State Disaster Response Fund (SDRF) and National Disaster Response Fund (NDRF).**

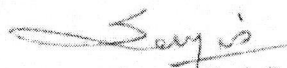
Sir/ Madam,

I am to refer to this Ministry's letter No. 32-7/2014-NDM-I dated 08<sup>th</sup> April 2015 and letter No. 33-05/2020-NDM-I dated 9<sup>th</sup> April 2020 on the subject mentioned above and to say that locust control activities, during a notified calamity, has been included in the list of eligible items & norms of assistance under from SDRF and NDRF. In this regard a new entry is added after item (13) under revised list of Item and Norms, as under:

Sl.	Items	Norms of assistance
14	Hiring of vehicles, tractors, with spray equipments for spraying of plant protection chemicals for pest control; hiring of water tankers; and purchase of plant protection chemicals for locust control.	As per the actual cost, based on assessment of need by the State Executive Committee (SEC) and recommended by the Central Team (in case of NDRF).  The quantum of assistance will be limited to the actual expenditure incurred on hiring vehicles, tractors with spray equipments for spraying of plant protection chemicals for locust control during a notified natural calamity. However, expenditure on this account should not exceed 25% of SDRF allocation for the year.

AD(PF)  
 20/5  
 28/5

Yours faithfully,

  
 (Sanjeev Kumar Jindal)

Joint Secretary to Government of India  
 Tel: 23092722

Copy to AS (UT), MHA for making similar provisions for utilization of UT Disaster Response Funds by the Union Territories.

CC for information: PS to HM/ MOS(N)/ HS/ Secretary (Expenditure).

AJAY BHALLA, IAS



गृह सचिव  
Home Secretary  
भारत सरकार  
Government of India  
North Block,  
New Delhi

D.O. No. 40-10/2020-DM-I (A)

27<sup>th</sup> May, 2020

Dear

As you are aware, some States in the country viz., Gujarat, Rajasthan and some parts of Madhya Pradesh, Uttar Pradesh and Punjab are in the grip of locust attack. The Locust Warning Organisation (LWO) under the Ministry of Agriculture & Farmers Welfare is mobilizing their teams from different States to the affected States for locust control. However, it is reported that at inter-State borders, their movement, is often restricted, causing inordinate delay in their timely deployment.

2. As you are also aware, timely deployment of LWO teams at the locust sites is important for effective control. You may therefore issue necessary instructions to all the local authorities to facilitate movement of Locust Warning Organisation teams.

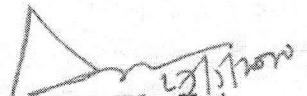
With regards,

Yours sincerely,  
Sd/-  
(Ajay Bhalla)

To

**The Chief Secretaries of all States.**  
**The Administrators of UTs.**

Copy to : Secretary, Department of Agriculture, Cooperation and Farmers Welfare, Ministry of Agriculture & Farmers Welfare, Krishi Bhavan, New Delhi.

  
(Ajay Bhalla)

JS/PP)

Alh  
28/5-

AD(PP)  
28/5-

**List of various approved pesticides for control of Desert Locust.****A. Pesticides approved used for control of Desert Locust in Scheduled Desert Area only**

S.No.	Chemical	Dosage		
		a.i.(gms)/ha	Formulations (gm/ml)/ha	Dilution in Water
1	Malathion 96%ulv	925	1000	NA
2	Malathion 5%DP	925	20000	NA
3	Fenvalrate 0.4%DP	80-100	20000-25000	NA
4	Quinalphos 1.5%DP	375	25000	NA

**B. Pesticides approved used for control of Desert Locust on crops, Acacia & other trees.**

S. No.	Chemical Name	Dosage			ml/per Litre
		a.i.(gms)/ha	Formulations (gm/ml)/ha	Dilution in Water (Litres)/ha	
1	Chloropyrifos 20%EC	240	1200	500	2.4 ml
2	Chloropyrifos 50%EC	240	500	500	1ml
3	Deltamethrin 2.8%EC	12.5	500	500	1 ml
4	Deltamethrin 1.25% ulv	12.5	1000	N/A	N/A
5	Diflubenzuron 25%WP	60*	240	Need base	-
6	Fipronil 5%SC	6.25	125	500	0.25 ml
7	Fipronil 2.92%EC	6.25	220	500	0.45ml
8	Lamda cyhalothrin 5%EC	20	400	500	1ml
9	Lamda cyhalothrin 10%WP	20	200	500	0.5 gm
10	Malathion 50% EC	925	1850	500	3.7 ml
11	Malathion 25% WP	925	3700	500	7.4 gm

\*Only for hoppers control