# KHARIF-2019 SURVEY OF SESAME CROP

## Executive Summary

Sesame is an ancient oilseed crop of India and also an important agricultural export commodity. In India, though Sesame is cultivated in one or more seasons (kharif and rabi) nearly 75% of annual acreage and production comes from kharif crop (June-November). With an objective of assessment of production of sesame from kharif-2019 crop, an extensive crop survey was carried out during the harvesting period in four major sesame growing states i.e. Madhya Pradesh, Uttar Pradesh, Rajasthan and Gujarat in India. Five teams moved across the sesame growing regions and interviewed 1017 sesame farmers in 45 districts across these four states. For the information of the stakeholders in the export trade, a brief presentation of the estimates was made at the Annual Trade Meet of the IOPEPC on 21 October 2019 at Deira, Dubai.

Kharif-2019 all India sesame acreage was 13,71,700 hectares. Four states, Gujarat (1,16,200 ha; 8%), Uttar Pradesh (4,17,435 ha; 30%), Rajasthan (2,70,191 ha; 20%) and Madhya Pradesh (3,14,300 ha; 23%) jointly accounted for 85 per cent of the national acreage. At the national level, there was an increase in acreage by 4 per cent with respect to kharif-2018. The decrease observed in Madhya Pradesh was quite large (29%). However, increases in Gujarat (49%) and Uttar Pradesh (26%) were substantial.

A majority of sesame farmers (30 to 57%) owned farm land smaller than two hectares. At national level, the peak period of sowing was 23 Jun to 13 July. The largest extent of sowing was done during 30 Jun to 13 July in Gujarat (62%) and during 16 Jun to 13 July in Rajasthan (70%) as well as in MP (61%) while it was during 16 Jun to 20 July in UP (79%). Most farmers procured seed from the local vendors and some used their home-grown seed. The vendors quite often sell sesame seeds that are a mixture of a few varieties under the guise of any popular authentic variety or assign a new name to their seed stocks. As most farmers relied on local seed vendors, they were not able to specify the true identity (variety) of the seed they had used for raising the crops.

Among the surveyed states, the highest yield of 565 kg/ha was estimated for Gujarat, followed by 289 kg/ha for Rajasthan, 262 kg/ha for Madhya Pradesh and 239 kg/ha for Uttar Pradesh. The national average yield was estimated at 291 kg/ha. The combined production of these four states was estimated at 3,25,852 MT which accounted for 82% of the estimated national production. With 99,767 MT, UP contributed 25% of the national production followed by Madhya Pradesh (82347 MT; 21%,) Rajasthan (78,085; 20%) and Gujarat (65,653 MT; 16%). While the joint contribution of the remaining states was estimated at 73,313 MT i.e. 18%. Thus, the all-India kharif 2019 production was estimated at 3,99,165 MT.

In kharif 2019, the rainfall was rather irregular and largely excess in major sesame growing regions. Due to a combined effect of acreage increase by 4% and yield increase, the kharif 2019 production (3.99 lakh MT) was estimated to be higher than that of kharif-2018 season (1.78 lakh MT).

# INTRODUCTION

Sesame has highest oil content amongst the annual oilseeds. It is rich in nutty flavor and is a common ingredient in cuisines across the world.

India is one of the largest exporters of sesame, with an annual all-season acreage about 17-20 lakh hectares. The crop requires about 450 to 600 mm rainfall and a temperature range of 25 to 35°C. Extreme low and very high temperature affect the growth. Depending on variety used, the crop matures in 80-110 days. Crop is considered ready for harvest when the leaves, stems and capsules begin to turn yellow and the lower leaves of the plant start shedding.

A well-planned extensive crop survey was carried out during harvesting period in four major sesame growing states in India for estimating production from Kharif-2019 crop.

# IMPORTANCE AND OBJECTIVES OF CROP SURVEY

The bulk arrival of kharif sesame crop is begins in last week of September to first week of October. Being by and large a rain dependent crop, the production in kharif season in various regions of India varies considerably from year to year.

The second advance estimate, the earliest realistic crop estimates are announced by Government of India in January/February, i.e. about four months after the bulk harvest of the kharif crops. If the estimates for kharif-2019 sesame crop are made available close on the heels of the harvesting season (the second fortnight of October), it would be very helpful in making right decisions about procurement, processing and export.

Therefore, with a view to fulfilling the crucial need of the stakeholders, a survey was undertaken in four major sesame growing states of India viz. Rajasthan, Gujarat, Madhya Pradesh and Uttar Pradesh. A brief presentation of the estimates was made at the Annual Trade Meet of the IOPEPC on 21 October 2019 at Deira, Dubai. The details of the methodology adopted for survey and the estimates are described in this report.

# METHODOLOGY

## District wise and state wise sesame acreage

The data on weekly progress of state-wise coverage of kharif 2019 sesame crop was obtained from the website of the Directorate of Economics and Statistics, Government of India. Information on district wise final acreage was obtained from the state departments of agriculture concerned either through correspondence or by downloading the information from the website of the respective state department.

## Selection of states and districts

The states were first arranged in decreasing order of their Kharif-2019 sesame acreages and then only those states were identified as would jointly account for at least for 80% of the national acreage. Similarly, within a state, the districts were first arranged in decreasing order of their acreages and then as many districts as would jointly account at least 75% of the acreage of the respective states were selected.

**Determination of number of farmers to be interviewed**

In each state, efforts were made to interview as many farmers as would be equal to 0.1 per cent of the figures for the kharif 2019 sesame acreage of that state (e.g. for a state having an acreage of 15,000 hectares, at least 15 farmers were to be interviewed.

**Composition of the survey teams**

Each survey team comprised two well-trained agri-experts and one member for assistance. The teams were required to collect data through on-site interview of farmers at their fields or villages. A pre-designed structured questionnaire (Annexure 1) was used for recording the data. Selection of the representative villages/farmers was done on random basis.

**GPS tagging of movement of survey teams**

All survey teams were equipped with GPS (Global Positioning System). Survey teams tagged the interview points. These GPS tagged points when superimposed on the respective state/district maps give a clear picture of the route followed by the interview teams.

**Rainfall data**

The month wise (June, July, August and September) data for rainfall along with its departure from the normal was downloaded from the website of IMD (Indian Meteorology Department). This data pertained to various defined meteorological sub-divisions of Indian states and UT.

**Scheduling of survey**

The survey was undertaken during the peak harvesting period of kharif sesame crop i.e. during the third week of September and the second week of October to have maximum number of farmers interviewed in their respective fields when the crop had been just harvested, being harvested or was about to be harvested.

**Estimating average yields (kg/ha) and production (metric tonne) of the districts and the states:**

The figures for the average sesame yield of each district were estimated as the mathematical average of the figures of the expected/realized yield as reported by the farmers of the respective districts. The yield was expressed as 'kg/ha'. For each district, the production of sesame was estimated by multiplying the estimated average yield of the district with the acreage (in hectares) of that district. The production was expressed as 'MT' (metric tonnes).

The anticipated production of non-surveyed districts was calculated by multiplying the figures of the collective acreages of non-surveyed districts with the weighted average yield of the surveyed districts in the states concerned. The total anticipated production of a state was calculated by summing up the figures for anticipated production in the surveyed and non-surveyed districts.

**Estimating average yield of non-surveyed states**

The average yield of the non-surveyed states was assumed to be equal to that of the weighted average yield of the surveyed states. The production from each of

the non-surveyed state was calculated by using the figures of the weighted average yield of the states and the acreage of state concerned.

The all India production was calculated by summing up the anticipated production of the surveyed states and the non-surveyed states.

## RESULTS

### Kharif-2019 sesame crop acreage

According to the Directorate of Economics and Statistics, GOI, all India kharif 2019 sesame acreage was 13,71,700 hectares. The states which jointly accounted for 82% of the national acreage were Rajasthan, Gujarat, Madhya Pradesh and Uttar Pradesh. The state wise breakup of acreages in these four states is given in table 1.

**Table 1: Kharif-2019 Sesame acreage (states arranged in decreasing order of acreage)**

|   | State | Acreage (ha) | Share (%) |
|---|-------|--------------|-----------|
| 1 | Uttar Pradesh | 417435 | 30 |
| 2 | Madhya Pradesh | 314300 | 23 |
| 3 | Rajasthan | 270191 | 20 |
| 4 | Gujarat | 116200 | 8 |
| 5 | Others | 253574 | 18 |
| 6 | All India | 1371700 | 100 |

A total of 45 districts across the four identified states were covered by survey. In all five teams were deployed to interview as many as 1,017 sesame farmers. State wise number of districts covered, and the farmers interviewed along with the dates of start and completion of survey are shown in table 2.

**Table 2: State wise particulars of kharif 2019 sesame crop survey**

| State | Acreage (ha) | Number | | | Period | |
|-------|--------------|-----------|-------|---------|--------|------|
| | | Districts | Teams | Farmers | From | To |
| Uttar Pradesh | 417435 | 10 | 1 | 301 | 22-Sep | 6-Oct |
| Madhya Pradesh | 314300 | 13 | 1 | 345 | 23-Sep | 8-Oct |
| Rajasthan | 270191 | 12 | 1 | 250 | 23-Sep | 6-Oct |
| Gujarat | 116200 | 10 | 2 | 121 | 23-Sep | 6-Oct |
| Others | 253574 | - | - | - | - | - |
| Total | 1371700 | **45** | **5** | **1017** | **22- Sep** | **8-Oct** |

The district boundary maps of the four states showing the surveyed districts (colour shaded) and also the satellite map showing GPS points visited by the survey teams are shown in figures 1a to 1d.





**Figure 1a: Districts surveyed (colour shaded) and GPS points in Madhya Pradesh**
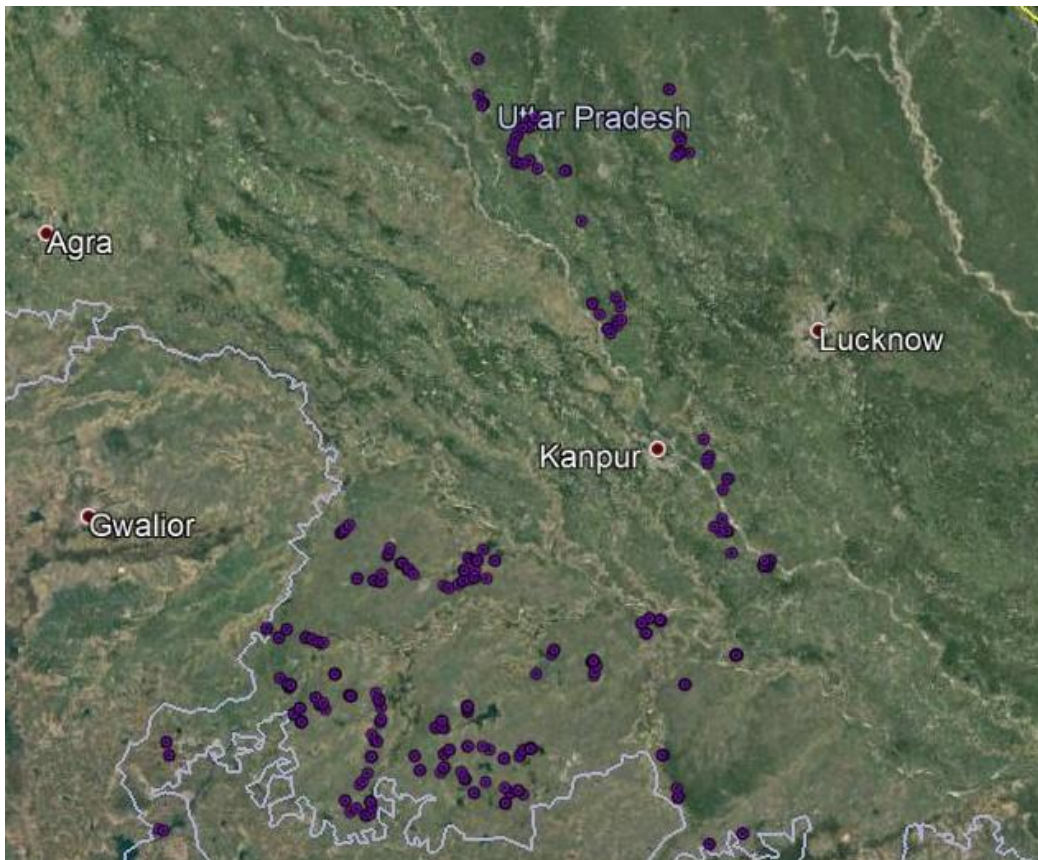
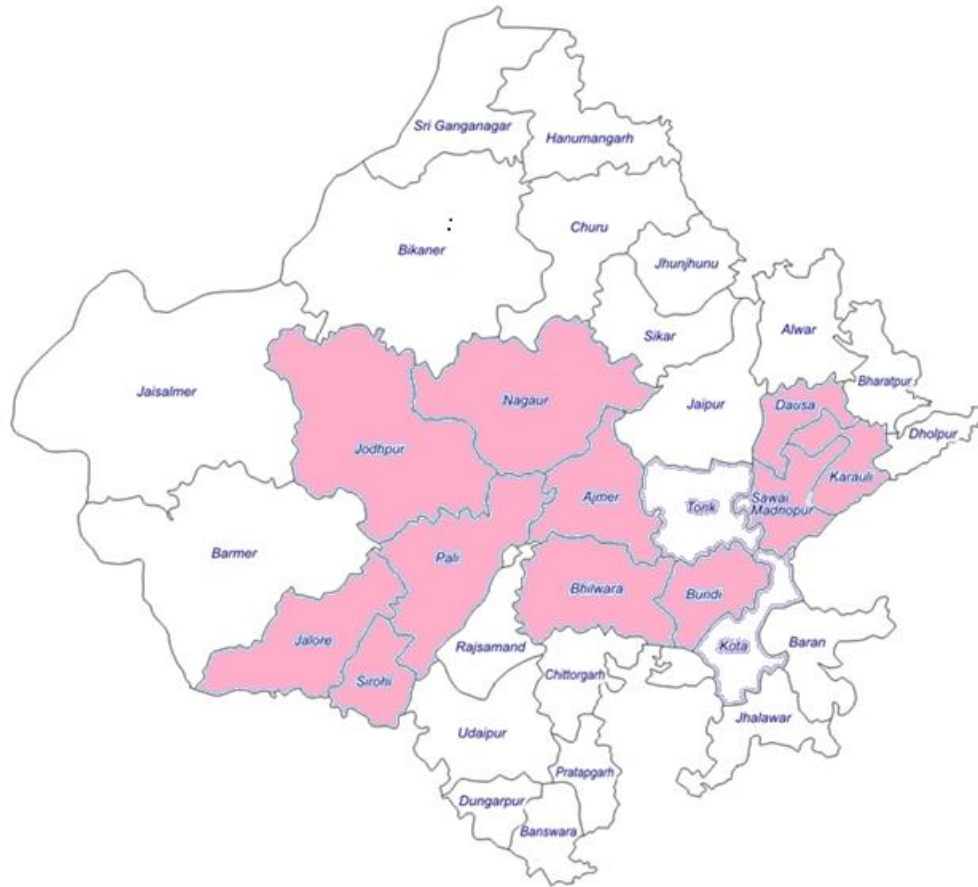**Figure 1b: Districts surveyed (colour shaded) and GPS points in Uttar Pradesh**

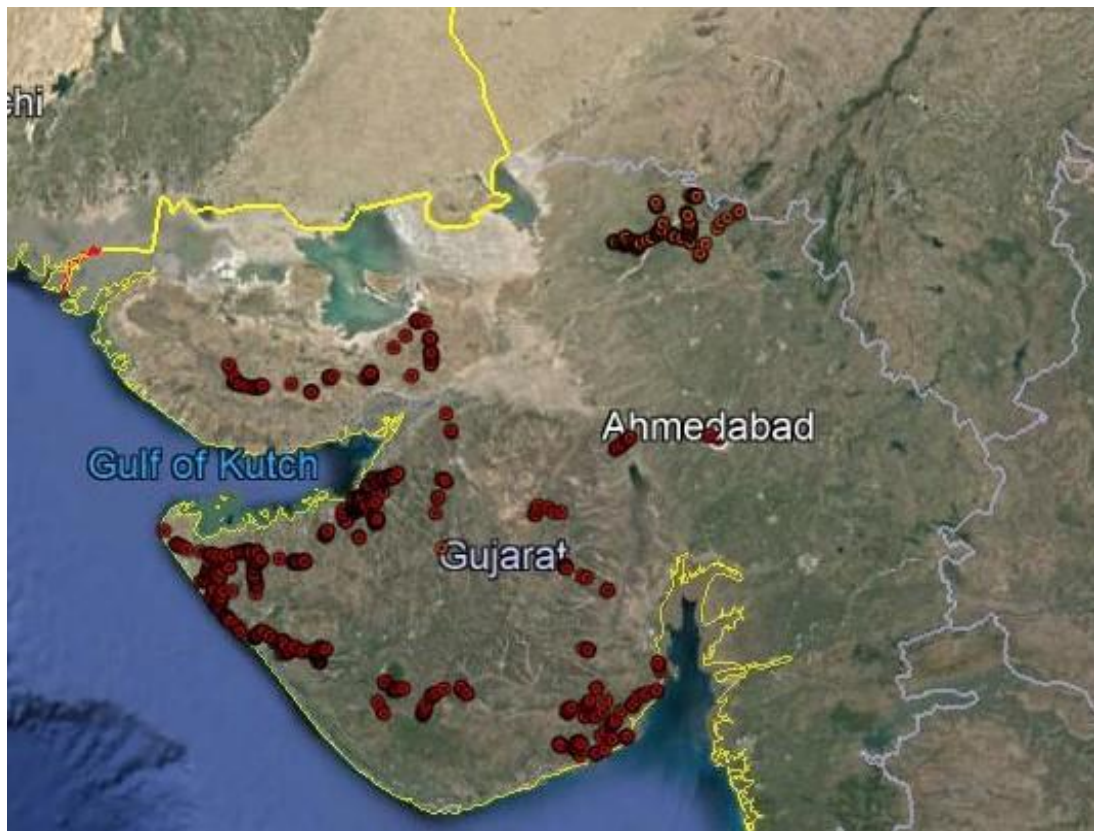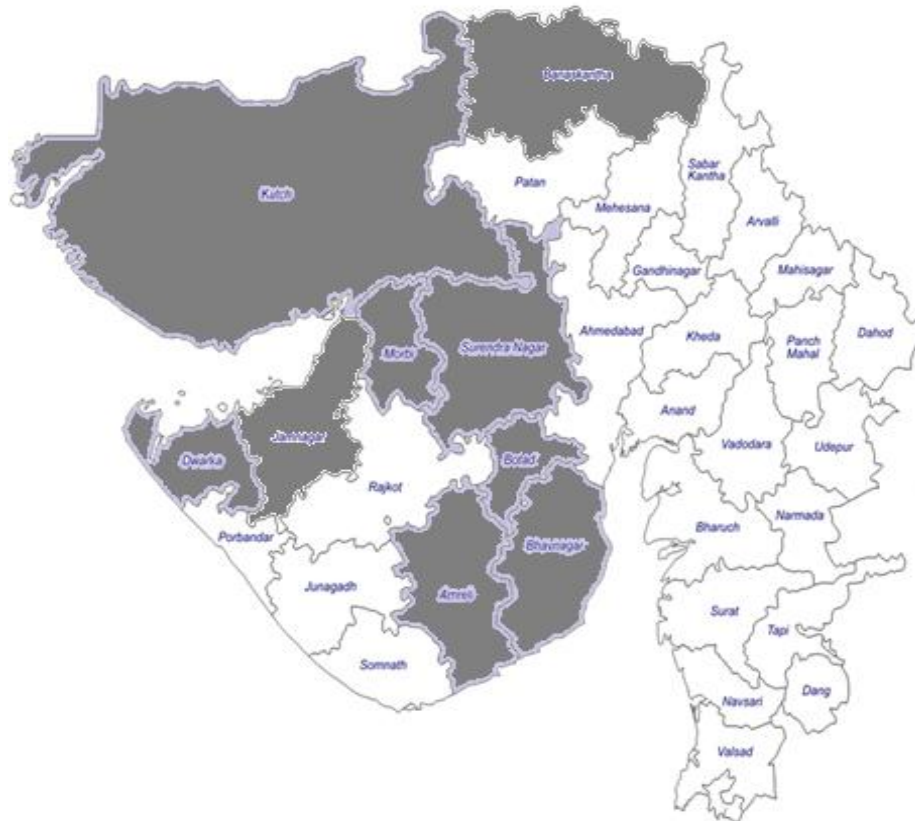**Figure 1c: Districts surveyed (colour shaded) and GPS points in Rajasthan**

**Figure 1d: Districts surveyed (colour shaded) and GPS points in Gujarat**

**Relative abundance of different sizes of land holdings:**

Based on size of the farm holdings owned, the sesame farmers were grouped into seven categories viz., 2 ha or less, 2 to 4 ha, 4 to 8 ha, 8 to12 ha, 12-16 ha, 16-20 ha and >20 ha. The relative abundance of farmers belonging to each of these categories is shown in figure 2.

In all four states, 0 to 2 ha and 2 to 4 ha categories groups in a combined manner formed most of the sesame farmers accounting for 56 per cent in Gujarat, 65 per cent in Madhya Pradesh, 76 per cent in Uttar Pradesh and 66 per cent in Rajasthan. In Uttar Pradesh the 0 to 2 ha category by itself accounted for more than half (57%) of the sesame farmers. Across the four states, the 4 to 8 ha category formed the third largest group. while all those owning eight hectares or larger holdings accounted for not more than 6 per cent.

Thus, in India the sesame crop is cultivated by the farmers having farm land smaller than four hectares.
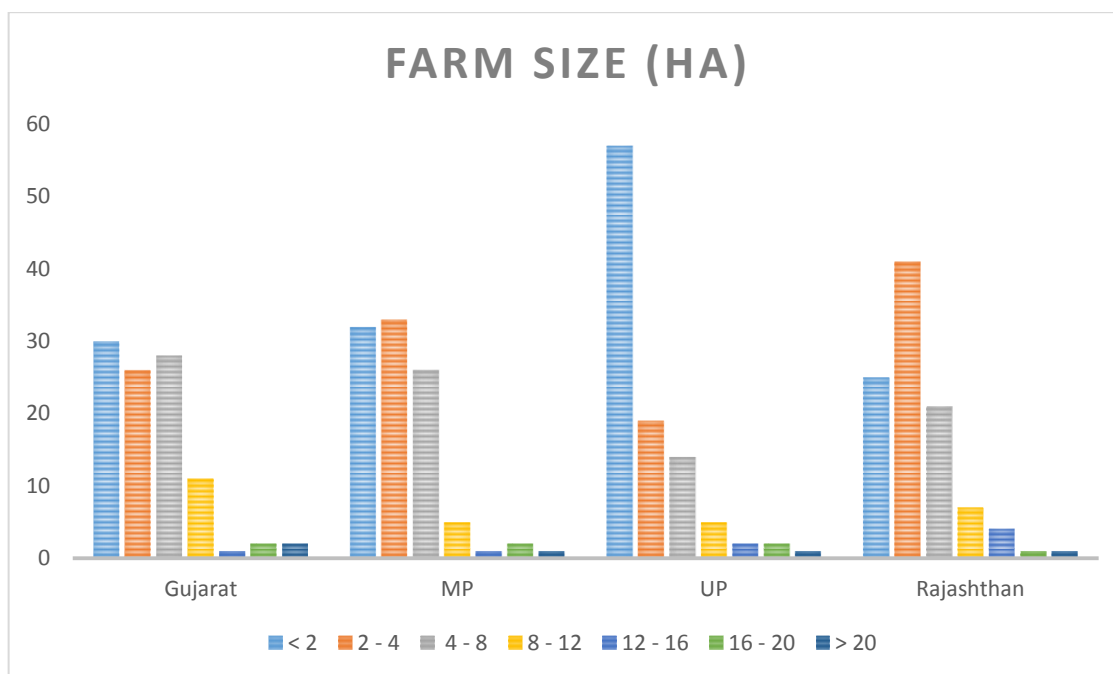


**Figure 2: Farm size distribution in the surveyed states (figures have been rounded to the nearest whole numbers)**

**Period of sowing:**

In the surveyed states, on a combined basis the sowing operations began in the third week of Jun and were concluded in the third week of July. The weeks during which sowing of more than 10% of the final acreage of the state was completed are indicated in table 3.

The peak period of sowing lasted for about one month in all the states. However, the bulk of sowing began earliest in Rajasthan, Uttar Pradesh and Madhya Pradesh i.e. in the third week of June. In Gujarat it was started in first week of July. The bulk of the sowing began in the third week of June and lasted up to third week of

July. Maximum extent of sowing was done during 30 June to 13 July in Gujarat (62%); in both Rajasthan (47%) and Madhya Pradesh (38%) during 23 June to 6 July and in Uttar Pradesh (39%) from 30 June to 13 July. Thus, at national level, the period of 23 June to 13 July was perceived to be to be the period of maximum coverage.

**Table 3: Weekly progress of sowing of sesame in the surveyed states (% of acreage)**

| Period | Gujarat | Rajasthan | Madhya Pradesh | Uttar Pradesh |
|--------|---------|-----------|----------------|---------------|
| 2 Jun – 8 Jun | 12 | # | # | # |
| 9 Jun – 15 Jun | # | # | # | # |
| 16 Jun – 22 Jun | # | 13 | 11 | 18 |
| 23 Jun – 29 Jun | # | 15 | 17 | 10 |
| 30 Jun – 6 Jul | 45 | 32 | 21 | 19 |
| 7 Jul – 13 Jul | 17 | 10 | 12 | 20 |
| 14 Jul – 20 Jul | # | # | # | 12 |
| 21 Jul – 27 Jul | # | # | # | # |
| Total coverage in peak period | 62 | 70 | 61 | 79 |

The sign '#' indicates values less than 10%.

**Scenario of sesame crop varieties:**

A vast majority of farmers used the seed procured from the local vendors. The vendors sell the seeds which are quite often a mixture of varieties. This seed material is sold under the guise of any popular authentic variety or any other assigned name. As the majority of farmers relied on local seed vendors, they were not able to reveal the true identity of the seed material used by them. However, on the basis of information furnished by the farmers, the state wise list of varieties sown is described below.

In Gujarat the list of varieties include Awani, Datiwada, Desi, G-2, G-4, G-6, Gujarat 1, 2, 3, 4, GT10, Ganga, Indo 21, Mangalam, Swati, Swastik, Til 10, Western and western 11.

In Uttar Pradesh the varieties used were Gujarat, G6, G4, Mukhi, Shweta, Pragari, T-10, T50, hybrid variety.

In Rajasthan the varieties used were Bansi, cho-falli, Do-falli, Dinkar, Jhumki, Jhumaktil, white and other hybrid seed variety the 'hybrid variety' was found to be the most popular in Rajasthan.

In Madhya Pradesh, farmers used Awasthi, Daftari, Desi, Gajra, Gujarat, Hybrid, TKG, TKG-22, Western and other varieties. In Madhya Pradesh the 'hybrid' variety was the most popular.

It may be mentioned here the word 'hybrid' variety is being used by the seed vendors and the farmers for conventionally bred varieties only as technically no hybrid variety has so far been released in sesame crop.

**Change in acreage: kharif-2019 vis-à-vis kharif 2018:**

At the national level, with respect to kharif-2018, in kharif 2019 there was an increase in acreage by 4%.

The all-India kharif 2019 acreage was 13,71,700 hectares. Rajasthan, Gujarat, Madhya Pradesh and Uttar Pradesh jointly accounted for 11,18,126 hectares i.e. 82% of the national acreage. The kharif 2019 crop acreages of the surveyed states, their shares in the national acreage and the change in acreage with respect to kharif 2019 are given in table 4.

**Table 4: Change in sesame acreage from kharif-2018 to kharif-2019**

| STATE | Kharif 2018 | | Kharif 2019 | | |
|---|---|---|---|---|---|
| | Acreage (ha) | Share (%) | Acreage (ha) | Share (%) | Change (%) |
| Gujarat | 78000 | 6 | 116200 | 8 | 49 |
| Rajasthan | 266612 | 20 | 270191 | 20 | 1 |
| Madhya Pradesh | 439900 | 33 | 314300 | 23 | -29 |
| Uttar Pradesh | 331438 | 25 | 417435 | 30 | 26 |
| Sub-total | 1115950 | 84 | 1118126 | 82 | 0 |
| Others | 208306 | 16 | 253574 | 18 | 22 |
| All India | 1324256 | 100 | 1371700 | 100 | 4 |

Source: Directorate of Economics and Statistics, Govt. of India

Compared to kharif 2018, there was an increase in acreage in three of the four states covered under survey. The maximum increase was observed in Gujarat (49%) and Uttar Pradesh (26%) while it was negligible in Rajasthan (1%). The decrease in Madhya Pradesh was considerable (-29%). On all-India basis, however, the increase was only 4%.

On the basis of district wise acreages in the four states, 45 districts were identified for survey. For each state, the names of the districts and their respective share (%) in the state acreage are given in tables 5a to 5d.

**Estimate of production**

The data generated on yield by the survey and the data on acreage collected from the state/central government agencies were used for estimating production of sesame in each of the districts surveyed and accordingly the production figures for each of the four states were estimated. The shares of the estimated production of each district in the total estimated production of the respective state are also indicated in tables 5a to 5d.

**Gujarat**

In 10 districts of Gujarat, the highest yield (702 kg/ha) was estimated for Rajkot and the lowest (395 kg/ha) for Bhavnagar. The highest production is estimated for Kutch which also accounted for the largest acreage (48%). The total production for sesame was estimated at 65,653 MT with an average yield of 565 kg/ha (Table 5a).

**Table 5a: Estimates of production of kharif-2019 sesame in Gujarat**

| District | Acreage (ha) | Share (%) | Farmers (no.) | Yield (kg/ha) | Production (MT) | Share (%) |
|---|---|---|---|---|---|---|
| Kutch | 55300 | 48 | 30 | 599 | 33125 | 50 |
| S 'Nagar | 15200 | 13 | 15 | 613 | 9318 | 14 |
| Morbi | 14000 | 12 | 10 | 520 | 7280 | 11 |
| Botad | 6600 | 6 | 6 | 497 | 3280 | 5 |
| Dwarka | 4600 | 4 | 10 | 469 | 2157 | 3 |
| Amreli | 3700 | 3 | 10 | 430 | 1591 | 2 |
| Bhavnagar | 5100 | 4 | 10 | 395 | 2015 | 3 |
| Jamnagar | 2700 | 2 | 10 | 633 | 1709 | 3 |
| B 'kantha | 2000 | 2 | 10 | 505 | 1010 | 2 |
| Rajkot | 1700 | 1 | 10 | 702 | 1193 | 2 |
| Sub Total | 110900 | 95 | 121 | 565 | 62678 | 95 |
| Other | 5300 | 5 | - | - | 2975 | 5 |
| Total | 116200 | 100 | 121 | 565 | 65653 | 100 |

**Madhya Pradesh**

In 13 districts of Madhya Pradesh, the highest yield (569 kg/ha) was estimated in Bhind and the lowest (128 kg/ha) for Panna. The highest production was estimated for Bhind which accounted for the second largest acreage too. The total production for sesame was estimated at 82,347 MT with an average yield of 262 kg/ha (Table 5b).

**Table 5b: Estimates of production of kharif-2019 sesame in Madhya Pradesh**

| District | Acreage (ha) | Share (%) | Farmers (no.) | Yield (kg/ha) | Production (MT) | Share (%) |
|---|---|---|---|---|---|---|
| Chattarpur | 73400 | 23 | 90 | 157 | 11524 | 14 |
| Bhind | 32400 | 10 | 33 | 569 | 18436 | 22 |
| Datia | 31400 | 10 | 40 | 171 | 5369 | 7 |
| Panna | 22000 | 7 | 25 | 128 | 2816 | 3 |
| Gwalior | 18000 | 6 | 23 | 239 | 4302 | 5 |
| Tikamgarh | 17200 | 5 | 30 | 193 | 3320 | 4 |
| Singrauli | 16000 | 5 | 20 | 403 | 6448 | 8 |
| Sheopurkala | 12600 | 4 | 15 | 338 | 4259 | 5 |
| Morena | 12400 | 4 | 15 | 255 | 3162 | 4 |
| Sidhi | 10900 | 3 | 15 | 416 | 4534 | 6 |
| Shahdol | 10000 | 3 | 12 | 281 | 2810 | 3 |
| Satna | 9900 | 3 | 12 | 216 | 2138 | 3 |
| Shivpuri | 7400 | 2 | 15 | 338 | 2501 | 3 |
| Subtotal | 273600 | 87 | 345 | 262 | 71619 | 87 |
| Others | 40700 | 13 | - | - | 10727 | 13 |
| Total | 314300 | 100 | 345 | 262 | 82347 | 100 |

**Uttar Pradesh**

In 10 districts of Uttar Pradesh, the highest yield (798 kg/ha) was estimated for Unnao and the lowest (120 kg/ha) for Mahoba. The highest production was estimated for Jhansi which also accounted for the largest acreage and nearly 17% of total production of the state. The total production for sesame was estimated at 99,767 MT with an average yield of 239 kg/ha (Table 5c).

**Table 5c: Estimates of production of kharif-2019 sesame in Uttar Pradesh**

| District | Acreage (ha) | Share (%) | Farmer (no.) | Yield (kg/ha) | Production (MT) | Share (%) |
|---|---|---|---|---|---|---|
| Jhansi | 90010 | 22 | 85 | 183 | 16472 | 17 |
| Hamirpur | 56514 | 14 | 40 | 172 | 9720 | 10 |
| Mahoba | 47430 | 11 | 40 | 120 | 5692 | 6 |
| Jalaun | 50000 | 12 | 40 | 135 | 6750 | 7 |
| Banda | 34850 | 8 | 30 | 236 | 8225 | 8 |
| Hardoi | 18920 | 5 | 20 | 447 | 8457 | 8 |
| Unnao | 11888 | 3 | 15 | 798 | 9487 | 10 |
| Fatehpur | 10854 | 3 | 10 | 510 | 5536 | 6 |
| Sitapur | 9820 | 2 | 10 | 525 | 5156 | 5 |
| Shahjahanpur | 8934 | 2 | 11 | 612 | 5468 | 5 |
| Sub Total | 339220 | 81 | 301 | 239 | 80961 | 81 |
| Others | 78215 | 19 | | | 18805 | 19 |
| Total | 417435 | 100 | 301 | 239 | 99767 | 100 |

**Rajasthan**

In 12 districts of Rajasthan, the highest yield was estimated for Dausa (376 kg/ha) and the lowest for Bhilwara (191 kg/ha). The highest production was estimated for Pali (13456 MT) which accounted for the largest acreage too (19%). With a production of 13098 MT , Swai Madhopur closely followed Pali. The total production for sesame was estimated at 78,085 MT with an average yield of 289 kg/ha (Table 5d).

**Table 5d: Estimates of production of kharif-2019 sesame in Rajasthan**

| District | Acreage (ha) | Share (%) | Farmer (no.) | Yield (kg/ha) | Production (MT) | Share (%) |
|---|---|---|---|---|---|---|
| Pali | 50585 | 19 | 65 | 266 | 13456 | 17 |
| S 'Madhopur | 40300 | 15 | 30 | 325 | 13098 | 16 |
| Jodhpur | 33900 | 13 | 30 | 310 | 10509 | 13 |
| Sirohi | 20871 | 8 | 20 | 328 | 6846 | 9 |
| Tonk | 13950 | 5 | 15 | 229 | 3195 | 4 |
| Karauli | 13455 | 5 | 15 | 262 | 3525 | 5 |
| Bhilwara | 11519 | 4 | 15 | 191 | 2200 | 3 |
| Jalor | 9991 | 4 | 15 | 349 | 3487 | 4 |
| Ajmer | 9794 | 4 | 12 | 272 | 2664 | 3 |
| Nagaur | 8438 | 3 | 15 | 270 | 2278 | 3 |
| Dausa | 7515 | 3 | 13 | 376 | 2826 | 4 |
| Bundi | 2271 | 1 | 5 | 261 | 593 | 1 |
| Subtotal | 222589 | 82 | 250 | 289 | 64272 | 82 |
| Others | 47602 | 18 | - | - | 13813 | 10 |
| Total | 270191 | 100 | 250 | 289 | 78085 | 100 |

**All India**

The figures for estimated state wise production and estimated all India production are given in table 6. The kharif 2019 all-India production was estimated at 3,99,165 MT. With a production of 99,767 MT, Uttar Pradesh had a share of 25 % in the national production followed by Madhya Pradesh (82,347 MT) with a share of 21%, Rajasthan (78,085 MT) with a share of 20% and Gujarat (65,653 MT) with a share of 16%. These four states collectively accounted for 82% of the national production. Among the surveyed states, at national level the highest yield of 565 kg/ha was estimated for Gujarat which was followed by 289 kg/ha for Rajasthan, 262 kg/ha for Madhya Pradesh and 239 kg/ha for Uttar Pradesh. The national average yield was estimated at 291 kg/ha (Table 6).

**Table 6: All India estimated production of sesame**

| State | Acreage (ha) | Share (%) | Yield (kg/ha) | Production (MT) | Share (%) |
|---|---|---|---|---|---|
| Gujarat | 116200 | 8 | 565 | 65653 | 16 |
| Rajasthan | 270191 | 20 | 289 | 78085 | 20 |
| Uttar Pradesh | 417435 | 30 | 239 | 99767 | 25 |
| Madhya Pradesh | 314300 | 23 | 262 | 82347 | 21 |
| Subtotal | 1118126 | 82 | 291 | 325852 | 82 |
| Others | 253574 | 18 | - | 73313 | 18 |
| Total | 1371700 | 100 | 291 | 399165 | 100 |

**Seasonal rainfall**

The Meteorological Department of India has divided the states into two or more meteorological sub-divisions. Accordingly, from the point of view of survey the important subdivisions are West Rajasthan, East Rajasthan, Saurashtra, Gujarat region, West Madhya Pradesh, East Madhya Pradesh, West Uttar Pradesh and East Uttar Pradesh.

With respect to long time average, the descriptors used by the IMD to categorise the extent of rainfall in the subdivisions are: Normal- minus 19 per cent to plus 19 per cent; Deficient- minus 20 per cent to minus 59 per cent; Large deficient- minus 60 per cent or more; Excess- plus 20 per cent to plus 59 percent; Large excess- plus 60% or more; and No rains- 0 per cent.

The graphical representation of rainfall pattern in the meteorological subdivisions of the major sesame growing regions is given in figure 3.

| MONTH | SAURASHTRA | GUJARAT REGION | | WEST MP | EAST MP | | WEST RAJASTHAN | EAST RAJASTHAN | | WEST UP | EAST UP |
|---|---|---|---|---|---|---|---|---|---|---|---|
| JUNE | -34 | -18 | | -26 | -58 | | -33 | 8 | | -71 | -56 |
| JULY | -33 | -22 | | 31 | -1 | | -5 | 23 | | -9 | 24 |
| AUGUST | 118 | 75 | | 64 | 27 | | 59 | 73 | | -31 | -38 |
| SEPTEMBER | 343 | 100 | | 168 | 124 | | 40 | 104 | | -26 | 54 |

Large excess     Excess     Normal     Deficient     Large deficient

**Figure 3: Graphical representation or rainfall pattern in the meteorological subdivisions of the major Sesame growing states of India**

Thus, in year 2019, the onset of monsoon was deficient (delayed) in Saurashtra while it was near normal in Gujarat region. Also, in June month, deficient rainfall was noted in MP and West Rajasthan. Large deficient rainfall was noted in Uttar Pradesh. In all surveyed state, excess rainfall prevailed in August which was followed by heavy rains in later stages of crop in most of the surveyed areas except Uttar Pradesh. In August deficient rainfall was noted in both the divisions of Uttar Pradesh and in September only in West Uttar Pradesh.

Therefore, due to a combined effect of increase in acreage by 4% and better yields for kharif 2019 the estimated sesame production (3.99 lakh MT) was much higher than 1.77 lakh MT of kharif-2018.

**Disclaimer**

**SGS**

## Kharif Crop Survey : Sesame - 2019

**Farmer Name:** ......................................................
**Telephone No:** ...................................................
**Village :** ..........................................................
**Block / Tehsil :** ................................................
**District:** ..........................................................
**State:** .............................................................

**GPS Location** : ...........................................
**AADHAR NO** : ...........................................
**Interview Date:** ........................................
**Team No** : ...........................................
**Team Leader** : ...........................................
**Team Member:** ..........................................

.........................................................................................................................................................

Good Morning, my name is.......................................... and I work for SGS India. At this moment we are studying Sesame cultivation practices being adopted in the Country. Can I have your attention for some questions?

### SECTION A (IDENTIFICATION/ SCREENING)

**A.1.**

I. Are you a farmer or responsible for farming in this region?
   a. Yes (go to next section)
   b. No (Stop the interview)

II. Have you grown sesame in last 2/3 years in your fields?
   a. Yes (go to next section)
   b. No (Stop the interview)

### SECTION B (FARM MANAGEMENT)

**B.1.** Total Land Size of the Farmer Area: 10    Unit Acre    (Conversion 1 Acre= _   1

**B.2.** Cropping System

Single Cropping [      ]
Mixed Cropping [      ]
inter Cropping [      ]

*% of farmer's total land (must sum up to 100%)*

### SECTION C (HISTORICAL CROP SURFACE)

**C.** What is the sesame acreage this year and previous year on the field and what is the production

| Crop | Type Of Sesame Seed (White/Brown/Black) | Area (Unit............) | | Production (Unit...............) | |
|------|------|------|------|------|------|
| | | 2018 | 2019 | 2018 | 2019 |
| Sesame | | | | | |
| | | | | | |

*Area Unit = Bigha,Acre, Guntha, Biswa  Production Unit : Kg, Quintal, mann, Bags]

### SECTION D (SOWING, HARVESTING)

**D.1.** When have you sowed, harvested? (For the 2018/19 crop the farmer shall estimate harvesting)

| Crop | Action | Crop 2018 (Week/ Month) | Crop 2019 (Week/ Month) |
|------|--------|------|------|
| Sesame | A. Sowing Time | | |
| Sesame | B. Variety Sown | | |
| Sesame | C. Expected Harvesting Time | | |

**D.2a** What is sowing time for current crop(2019)?

| Early | Timely | Late | If not Timely, Reason for the same |
|-------|--------|------|------|
| | | | |

**D.2b**    Method of sowing:  Broadcasting ☐     Line Sowing ☐

**D.3.**   Which  seed variety is used?     (Interviewer to probe for specific variety name.)

............................................................................................................................

............................................................................................................................

## SECTION E (USE OF TECHNOLOGY)

**E.1.** SEED  SOURCE

| Action | % of Bought/Own seed For Crop 2018 | | % of Bought/Own seed For Crop 2019 | |
|---|---|---|---|---|
| | Brought | Owned | Brought | Owned |
| Seed Utilization | | | | |

*Note: For each crop, bought + own should totalize 100%*

**E.2.**   what is  seed source/ fertilizers/chemicals to use:  (Please tick more than one option, if answered)

a.  Self                       d.      Price/ Cost of inputs

b.  Neighbour/ Fellow Farmers       e.      Others (Specify) ....................................

c.  Seller/ Retailer

**E.3.** Irrigation/ Pesticides

| E.3. Action | E.3.A. Crop 2018 | E.3.B. Crop 2019 |
|---|---|---|
| A. Type / Source of Irrigation(Flood / DRIP/Sprinkler) | | |
| B. Source of Irrigation ( Open well, Bore-well, Pond, Canal/river, Others (specify) | | |
| C. Rainfall (Poor, Normal, Excess, Large exce | | |

## SECTION F (CROP CONDITION & WEED MANAGEMENT)

**F.1.** Please specify the following:

| Parameters | Year | | If Bad, Reason 2018 | If Bad, Reason 2019 |
|---|---|---|---|---|
| | 2018 | 2019 | | |
| Crop Condition | | | | |
| Weather Condition | | | | |

Please Select Bad, Normal, Good.

| Parameters | Severity (L/M/H) | Stage of crop (V/F/PF/H) | Name | Management (No/Yes) |
|---|---|---|---|---|
| Disease attack | | | | |
| Pest Attack | | | | |

Please Select Low, Normal, High.  V=Vegetative, F=Flowering, PF=pod filling,H=Harvest

**F.1.** Weed Management      Chemical ☐     Manual ☐     Mixed ☐

**F.2.** Details about chemicals/fertilizers/pesticides applied

| Use of Chemicals in 2019 | YES/NO | Name | Dose ( if possible) |
|---|---|---|---|
| Organic manure applied or note | | | |
| Name of chemicals/pesticides | | | |
| Name of chemical fertilizer | | | |

## SECTION G (PRICE INFORMATION)

**G.2.** Produce Utilization

Percentage of the produce Used for Consumption [                    ] % / Value

Percentage of the produce Sell in the market [                    ] % / Value

Price expectation for current crops     _____

**G.3.** D- What facility / benefit /Help you expect from government and/or any other government bodies to continue sesame cultivation on your field?...........................................

**G.4.** Where you sell your produce?

Village Grain Market [    ]      District Grain Market [    ]

At farm directly to Trader/broker [    ]

## SECTION H (REMARKS)

**H** To be answered by Interviewer

**H.1.** Quality of information from the farmer (encircle the rank you feel most appropriate)

Least Satisfied                                                  Most Satisfied

0     1     3     4     5     6     7     9

**H.2.** General Remarks / Opinion /observations of Farmers.

........................................................................................................................
........................................................................................................................
........................................................................................................................

**H.3.** General comment of the surveyor:

........................................................................................................................
........................................................................................................................
........................................................................................................................
........................................................................................................................

Team Leader Name:

Signature :