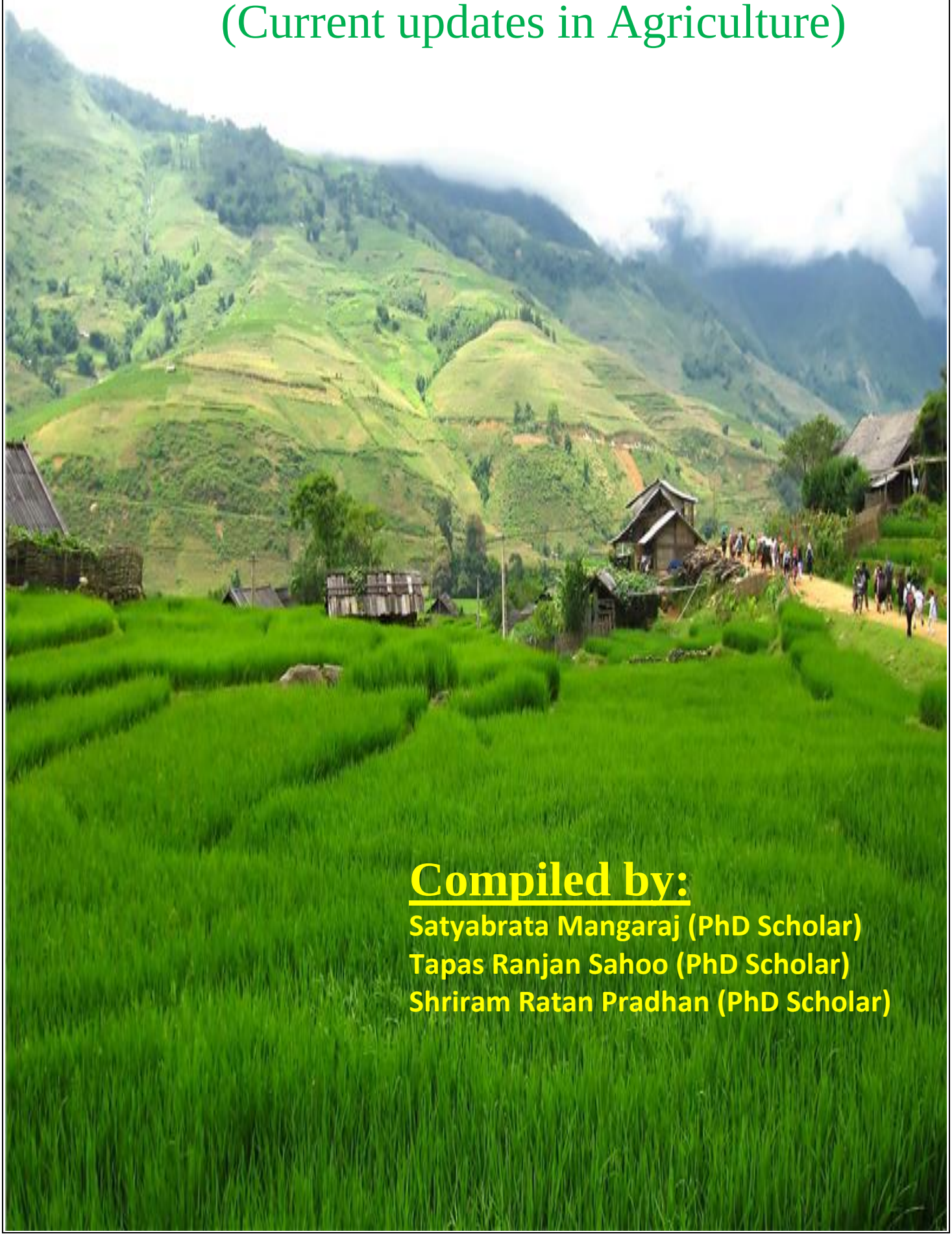
# AGRI CAPSULES

## (Current updates in Agriculture)

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# CURRENT AGRICULTURAL UPDATES

## INDIAN AGRICULTURE AT A GLANCE

- Total geographical area of the country -3287263 sq km (328.7 M ha)
- Percentage of world area -2.42 % ($7^{th}$ place in world)
- Latitudinal extent- 8⁰- 4' N to 37⁰ - 6 ' N
- Longitudinal extent- 68⁰ -7 ' E to 97⁰- 25' E
- Standard meridian- 82 ½⁰ E Longitudes (Passing through Allahabad. Time 5 ½ hrs. ahead of Greenwich Mean Time.
- Total population – 1,21,05,69,573 (2011) (17.5% of world population)
- 54.6% of the population is engaged in agriculture and allied activities (census 2011) and it contributes 17% to the country's Gross Value Added (current price 2015-16, 2011-12 series).
- Largest state (area wise)-Rajasthan
- Smallest state (area wise)-Goa
- Gross cropped area (2013-14) - 200.9 M ha
- Net area sown (2013-14)-141.4 m ha (43 % of total geographical area )
- Cropping intensity- 142 %
- Salt affected area in India-6.32 M ha
- Acid soil in India-12 M ha (highest-Assam)
- Forest and tree cover area -794245 sq km
- Total forest cover area- 701673 sq km
- World water resource present in India- 4.2%
- Per capita land availability in India- 0.12 ha
- Per capita agriculture land (2012-13) - 0.147 ha
- Gross irrigated area (2012-13) – 92.57 m ha (47.6 % of total cropped area)
- Net irrigated area- 68.2 M ha

- Area irrigated more than once- 26.26 M ha
- Per capita irrigated area- 0.049 ha (world)
- Per capita irrigated area-0.057 ha (India)
- Highest water erosion state- Kerala
- Rainfed area as % of net sown area (2012-13) - 52.4%
- Means of irrigation- Canal (22 %), well (16 %), Tube well (46 %), Tank (3 %) and others (9%)
- Place with maximum rainfall – Mawsynram (Meghalaya)
- Place with minimum rainfall – Leh
- Maximum rainfall disparity state - Kerala
- In India, Narmada and Tapti are the two rivers which flow towards West while Rest Rivers of country flow towards East.
- India having animal population-11%

## Rainfall (2016-17)

- In the Year 2016, the cumulative monsoon rainfall for the country as a whole during 1st June to 30th September, 2016 was 3% lower than Long Period Average (LPA).
- Out of 36 metorological sub-divisions, 27 metorological sub-divisions have received excess/normal rainfall and 9 met sub-divisions received deficient rainfall.
- Rainfall in the four broad geographical divisions of the country during the above period was higher than LPA by 6% in Central India but lower than LPA by 11% in East & North East India, 8% in South Peninsula and 5% in North West India.
- During the post-monsoon season (1st October to 31st December, 2016) the cumulative rainfall for the country, as a whole, has been 45% lower than the LPA.

- Out of 36 meteorological subdivisions, 03 subdivisions received large excess rainfall, 07 received Excess normal rainfall, 13 received deficient rainfall and 13 received large deficient scanty rainfall.

## PRODUCTION SCENARIO 2015-16

- Total food grains production in the country - **252.22 million tonnes**
    - (Marginally higher by 0.20 million tonnes than the food grains production of 2014-15 252.02 million tonnes.)
- Total production of rice- 104.32 M t.
- Total production of wheat- 93.5 M t
- Total production of Coarse Cereals- 37.94 M t
- Total production of pulses- 16.47 M t
- Total production of oilseeds- 25.30 M t
- Total production of sugarcane is estimated at 352.16 million tonne
- Total production of cotton estimated at 30.15 million bales (of 170 kg each)
- Production of jute & mesta estimated at 10.47 million bales (of 180 kg each).
- Agriculture and Allied sector contributed approximately 17.0% of India's Gross Value Added (GVA) at current prices during 2015-16.
- The Agriculture and Allied sector witnessed a growth of 1.5 per cent in 2012- 13, 4.2 per cent in 2013-14, -0.2 per cent in 2014-15 and 1.2 in 2015-16 at 2011-12 basic prices.
- Share of agriculture and allied sectors in total GDP during 2014-15 – 17.4%

## AREA, PRODUCTION AND YIELD OF MAJOR CROPS

| Crops | Area (Lakh hectare) | | | Production (Million Tonnes) | | | Yield (kg/hectare) | | |
|---|---|---|---|---|---|---|---|---|---|
| | 2013-14 | 2014-15 | 2015-16* | 2013-14 | 2014-15 | 2015-16* | 2013-14 | 2014-15 | 2015-16* |
| Rice | 441.36 | 441.10 | 433.88 | 106.65 | 105.48 | 104.32 | 2416 | 2391 | 2404 |
| Wheat | 304.73 | 314.65 | 302.27 | 95.85 | 86.52 | 93.50 | 3145 | 2750 | 3093 |
| Coarse cereals | 252.19 | 251.70 | 237.75 | 43.29 | 42.86 | 37.93 | 1717 | 1703 | 1596 |
| Pulses | 252.12 | 235.54 | 252.59 | 19.25 | 17.15 | 16.47 | 764 | 728 | 652 |
| Foodgrains | 1250.41 | 1243.00 | 1226.50 | 265.04 | 252.02 | 252.22 | 2120 | 2028 | 2056 |
| Oilseeds | 280.50 | 255.96 | 261.34 | 32.74 | 27.51 | 25.30 | 1168 | 1075 | 968 |
| Sugarcane | 49.93 | 50.66 | 49.53 | 352.14 | 362.33 | 352.16 | 70522 | 71512 | 71095 |
| Cotton@ | 119.60 | 128.19 | 118.72 | 35.90 | 34.80 | 30.15 | 510 | 462 | 432 |
| Jute & Mesta# | 8.38 | 8.09 | 7.85 | 11.69 | 11.12 | 10.47 | 2512 | 2473 | 2399 |

* 4th advance estimates @ Production in million bales of 170 kg each.

# Production in million bales 180 Kg. each.

- As per 1st advance estimates for 2016-2017, total production of food grain is estimated -135.03 M t (record ).
- Rice- 93.88 M t (record ), coarse cereals 32.45 M t (record ), maize-19.30 M t (record ), pulses- 8.70 M t (record ), tur 4.29 M t (record ), Urad-2.01 M t, Oilseeds-23.36 M t, Soybean-14.22 M t, Groundnut-6.50 M t, Castorseed-1.73 M t, Cotton-32.12 M t, Sugarcane-305.25 M t (* M t- million tonnes)
- Agriculture leads in net foreign exchange earnings in India

## Three Largest Producing States of Important Crops during 2013-14

| Crops | Leading states |
|---|---|
| Rice | West Bengal >Uttar Pradesh >Andhra Pradesh |
| Wheat | Uttar Pradesh> Punjab > Madhya Pradesh |
| Maize | Andhra Pradesh> Karnataka> Maharashtra |

| | |
|---|---|
| Total coarse cereals | Karnataka >Rajasthan >Maharashtra |
| Total Pulses | Madhya Pradesh> Maharashtra> Rajasthan |
| Ground nut | Gujarat > Andhra Pradesh> Tamil Nadu |
| Rapeseed&mustard | Rajasthan> Madhya Pradesh >Haryana |
| Soybean | Madhya Pradesh > Maharashtra >Rajasthan |
| Sunflower | Karnataka >Andhra Pradesh >Maharashtra |
| Total oilseed | Gujarat> Madhya Pradesh> Rajasthan |
| Sugarcane | Uttar Pradesh >Maharashtra >Karnataka |
| Cotton | Gujarat > Maharashtra >Andhra Pradesh |
| Jute and Mesta | West Bengal >Bihar >Assam |

## NEW VARIETIES RELEASED BY ICAR

Wheat- Pusa Kiran (HS 542- semi dwarf variety), Nilgiri Khapli (HW 1098), HDSCW 18 (first variety of the country bred specifically for Conservation Agricultue), HD 3117, Pusa Malvi (HD 4728), HS 562

Pearl Millet- Pusa Composite 701

Mustard –Pusa Double Zero Mustard 31- First canola type, erucic acid less than 2% and glucosinolates < 30 pp

Pigeon pea - PUSA Arhar 16 (determinate, extra early maturity)

Sugarcane – C0- 0238 (Wonder variety of sugarcane )

- Quality Protein Maize (QPM) - PUSA Breakfast Cereal
- World's first cytoplasmic male sterility based pigeon pea hybrid- GTH 1
- Low neuro toxin varieties of grass pea- rattan, nirmal, prateek
- Marigold- Pusa Bahar
- High zinc rice variety- DRR Dhan 45
- High protein rice variety- CR Dhan 310
- First ever short duration mung (< 60 days )- Virat (IPM 205-7)
- BLB of rice disease resistant variety- PUSA 1592, Punjab Basmati-3
- Blast disease resistant rice variety- PUSA 109

## INDIA'S POSTION IN WORLD AGRICULTURE:

| Items | % share | Position | Next to |
|---|---|---|---|
| Total Area | 2.4 | Seventh | Russian Federation, Canada, USA, China, Brazil, Australia |
| Land Area | 2.3 | Seventh | Russian Federation, China, USA, Canada, Brazil, Australia |
| Arable Land | 11.3 | Second | USA |
| Total Cereals | 10.6 | Third | China, USA |
| Wheat | 12.3 | Second | China |
| Rice (Paddy) | 21.7 | Second | China |
| Total Pulses | 25.4 | First | |
| Groundnut(in shell) | 18.4 | Second | China |
| Rapeseed | 13.7 | Third | Canada, China |
| Sugarcane | 17.8 | Second | Brazil |
| Jute & Allied Fibres | 56.8 | First | |
| Cotton (Lint) | 24.9 | Second | China |
| Tobacco Leaves | 7.4 | Third | China, Brazil |

## RECENT HORTICULTURAL SCENARIO

- Over the last decade, the area under horticulture grew by about 2.7% per annum and annual production increased by 7.0%. During 2013-14, the production of horticultural crops was about 283.5 million tonnes from an area of 24.2 million hectares.
- Out of the six categories, that is, fruits, vegetables, flowers, aromatic, spices and plantation crops, the highest annual growth of 9.5% is seen in fruit production during 2013-14. The annual growth in citrus fruits is quite high (10.48%) during 2013-14. This fruit has been contributing 12–13% of total fruit production over the last few years. As indicated in the later part, in 2013-14, the total fruit production was highest in the case of Maharashtra (134.6 lakh tonnes) followed by Andhra Pradesh (105.11 lakh tonnes).
- The contribution of vegetables remains highest (59–61%) in horticulture crop productions over the last five years. During 2013-14, the area under

vegetables is estimated at 9.4 million ha with a production of 162.9 million tonnes in India. For this period, the total vegetable production was highest in case of West Bengal (23,045 thousand tonnes) followed by Uttar Pradesh (18,545 thousand tonnes).

- The highest production of flowers (loose) was recorded in Tamil Nadu (343.65 thousand tonnes) followed by Karnataka (211.50 thousand tonnes).
- The area under horticultural crops has been increased about 18% but expansion of area under food grains is only 5% during the stipulated period.
- Uttar Pradesh has the highest number of cold storages (2,176) followed by Punjab (606) and Gujarat (560).
- The trend in production share of major fruits is banana (33.4 %) followed by mango (20.7 %) followed by citrus fruits (12.5 %).
- The trend in production share of major vegetables is potato (25.5 %) followed by onion (11.9 %) followed by tomatoes (11.5 %).
- The trend in production share of major plantation crops is coconut (91.47 %) followed by cashew nut (4.62 %) followed by areca nut (3.82 %).
- The trend in production share of major spices is chilli (25.26 %) followed by garlic (21.19 %) followed by turmeric (20.14 %) followed by ginger (11.09 %).
- Top three states in fruit production, production wise are MH (15 %) followed by AP (12%) followed by GUJ (9 %).
- Top three states in fruit production area wise are MH (22 %) followed by AP (9 %) followed by GUJ, TN, UP, KT (all 5 %).
- Top three states in vegetable production, production wise are WB (14.1 %) followed by UP (11.4%) followed by BIHAR (9.3 %).
- Top three states in vegetable production, area wise are WB (14.7 %) followed by UP (9.1 %) followed by BIHAR (8.6 %).
- Top three states in cut flower production, production wise are WB (27 %) followed by KT (13 %) followed by ODISHA (11%).

- Top three states in loose flower production, production wise are TN (19 %) followed by KT (12 %) followed by MP (11 %).
- Leading cashew nut producing states are MH (31.4 %) followed by AP (13.3 %) followed by ODISHA (11.4 %).
- Leading areca nut producing states are KT (56.2 %) followed by KERALA (18.2 %) followed by ASSAM (11.9 %).
- Leading coconut producing states are TN (32 %) followed by KERALA (28 %) followed by KT (21 %).
- Leading spice producing states are GUJ followed by AP followed by RAJASTHAN.
- Average productivity of fruit crops in 2013-14 is 12.3 MT/ha.
- Average productivity of vegtable crops in 2013-14 is 17.3 MT/ha.
- Average productivity of plantation crops in 2013-14 is 4.4 MT/ha.
- States with highest area under drip are MH(881550 ha) followed by AP(823833 ha) followed by GUJ(423771 ha).
- States with highest area under sprinkler are RAJ(1502329 ha) followed by HARYANA(538608 ha) followed by KT(423406 ha).
- States with highest area under micro irrigation (drip + sprinkler) are RAJ followed by MH followed by AP.
- Ministry of Agriculture had declared 2012 as the Year of Horticulture.

**NATIONAL PRODUCTION STATISTICS AND TRENDS IN FRUITS AND VEGETABLES DURING 2013-14 (as per latest data available on NHB Database 2015)**

| **Crop** | **% of Area Trend** | **% of Production Trend** | **Productivity Trend (MT/ha)** | **Productivity (MT/ha)** |
|---|---|---|---|---|
| **FRUITS** | | | | |
| Apple | J & K > HP > UK | J & K (66 %) >HP (30 %) > UK (3.1 %) | J & K (10.2T/ha) > HP > UK | 8 |
| Banana | TN > KT > AP | TN (19 %) > MH (16.3 %) > GUJ (14.2 %) | MP (66T/ha) > GUJ > MH | 37 |
| Citrus Fruits | MH >AP > MP | AP (17.2 % > MP (15.8 %) >MP (11.1 %) | KT (21.9 T/ha) > PUN (20.7 T/ha) > RAJ (18) | 10.3 |
| Grapes | MH > KT > TN | MH (83. 5 %) > KT (11.7 %) > TN (1.8 %) | MH (24 T/ha) > TEL (21 T/ha) > AP (20.8 T/ha) | 21.8 |

| | | | | |
|---|---|---|---|---|
| Guava | UP > MH > BIHAR | MP (22.9 %) > UP (16.5 %) > BIHAR (10.2 %) | MP (37.6) > KT (22.3 T/ha) > PUN (22 T/ ha) | 13.7 |
| Litchi | BIHAR > WB > JH | BIHAR (40 %) > WB (16 %) >JH (10 %) | PUN (15.1 T/ha) > JH (11.1 T/ha) > WB (10.1 T/ha) | 7 |
| Mango | MH > AP > UP | UP (23.3 %) > AP (14.8 %) > KT (9.5 %) | UP (16.4 T/ha) > JH (10.1 T/ha) > KT (9.7 T/ha) | 7.3 |
| Papaya | GUJ > AP > MP | AP (27. 4 %) > GUJ (21 %) > MH (8.9 %) | TN (198 T/ha) > AP (80 T/ha) > TEL | 42.3 |
| Pine Apple | ASSAM > MANIPUR > AR. P | WB (18.2 %) > ASSAM (16.6 %) > TRIPURA (9.3 %) | KT (58.9 T/ha) > WB (29.4 T/ha) > BIHAR (27.4) | 15.8 |
| Pome Granate | MH > KT >GUJ | MH (70.2 %)> KT (10 %) > GUJ (7.4 %) | TN (32.7 T/ha) > AP & TEL (15 T/ha) | 10.3 |
| Sapota | MH > KT > GUJ | MH (27.2 %) > KT (21 %) > GUJ (17 %) | TN (32. 8 T/ha) > KT > WB | 9.9 |
| **VEGETABLES** | | | | |
| **Crop** | **% of Area Trend** | **% of Production Trend** | **Productivity Trend (MT/ha)** | **Producti--vity (MT/ha)** |
| Brinjal | WB > ODISHA > GUJ | WB (23 %) > ODISHA (17 %) > GUJ (11 %) | KT (25.4 T/ha) > MP (25T/ha) > MH | 19.1 |
| Cabbage | WB > ODISHA > BIHAR | WB (24 %) > ODISHA (13 %) > BIHAR (8 %) | MP (29.4 T/ha) > WB & ODISHA (28.1 T/ha) | 22.6 |
| Cauliflower | WB > BIHAR > ODISHA | WB (22 %) > BIHAR (13 %) > MH (10 %) | MP (28 T/ha) < WB > MH | 19.8 |
| Okra | WB > GUJ > ODISHA | WB (14 %) > BIHAR (12 %) > GUJ (12 %) | CHH (15.5 T/ha) > TEL & AP (15 T/ha) | 11.9 |
| Onion | MH > KT > MP | MH (30 %) > MP (15 %) > KT (11 %) | GUJ (25.4 T/ha) > MP (24.1 T/ha) > BIHAR (24 T/ha) | 16.1 |
| Peas | UP > MP > JH | UP (46 %) > MP (12.3 %) > JH (9.3 %) | J & K (20.8 T/ha) > JH (14.9 T/ha) > HP | 8.9 |
| Tomato | AP > ODISHA > TEL | AP (17.9 %) > KT (11.04 %) > MP (10.34 %) | KT (33.9 T/ha) > MP > GUJ | 21.2 |
| Potato | UP > WB > BIHAR | UP (33 %) > WB (22 %) >BIHAR (16 %) | GUJ (30.8 T/ha) > PUN > UP | 21.1 |
| Sweet Potato | ODISHA > WB > UP | ODISHA (36 %) > WB (22 %) > UP (21 %) | MP (17.9T/ha) > NAG > KT | 10.3 |

| | | | | |
|---|---|---|---|---|
| Tapioca | TN > KERALA > AP | TN (61.1 %) > KERALA (31.7 %) > AP(4.49 %) | TN (41.3 T/ha) > KERALA (36.3 T/ha) > AP | 35.7 |

## EXPORT TRENDS IN HORTICULTURE

Fresh onions – 22.1 %
Other processed F & V- 15.8 %
Other fresh fruits- 7.1 %
Mango pulp- 5.4 %
Floriculture- 3.2 %
Walnut- 2.3 %
Other fresh vegetables – 16 %
Fresh grapes – 11.6 %
Cucumber & gherkin (prep. pres.)-6.6 %
Dried and preserved vegetables- 5.2 %
Fruit and vegetable seeds- 2.9 %
Fresh mangoes- 2%

| COMMODITY | MAJOR COUNTRIES FOR EXPORTING |
|---|---|
| **FRESH FRUITS** | |
| Apple | Bangladesh |
| Banana | UAE, Southi Arabia |
| Orange | Bangladesh |
| Grape | Netherland, Russia |
| Guava | UAE, Yemen |
| Litchi | China, Thailand |
| Mango | UAE, UK |
| Papaya | Uae, Southi Arabia, Netherlands |
| Sapota | Uae, Baharain |
| Pine Apple | Southi Arabia, Quatar |
| **FRESH VEGETABLES** | |
| Cauliflower | Maldives, Singapore |
| Cabbage | Pakistan, Nepal |
| Onion | Bangladesh, Malaysia, Srilanka, Uae |
| Tomato | Pakistan, UAE |
| Potato | Nepal, Srilanka |
| Sweet Potato | UAE, Nepal |
| Pea | Pakistan, Uk |
| **FLOWERS** | USA (18.6 %) > Netherlands (14.5 %) > Germany (13 %) > UK (12.1 %) |
| **FRUIT AND VEGETABLE SEEDS** | Pakistan, USA, Bangladesh |

| | |
|---|---|
| **DRIED AND PRESERVED VEGETABLES** | Germany, Russia, UK, USA |
| **MANGO PULP** | Southi Arabia, Yemen, Netherlands |

## WORLD STATISTICS (based of report of FAO, 2013):

| CROP | TOP PRODUCERS | WORLD PRODUCTIVITY (T/ha) | BEST PRODUCTIVITY (T/ha) |
|---|---|---|---|
| **Fruits** | **China (20.9 %) > India (13.6 %) > Brazil (5.9 %)** | **11.4** | **USA (23.3)** |
| Apple | China (48.3 %)> USA > Turkey > Poland > India (3.3 %) | 15.9 | Chile (44.5) |
| Banana | India (27.8 %) > China > Phillippines | 21.2 | Indonesia (58.9) |
| Grape | China (14 %) > USA > Italy | 9.8 | India (21.8) |
| Mango and Guava | India (45.1 %) > China > Kenya | 8.7 | Kenya (48.8) |
| Orange | Brazil (26.8 %) > USA > China > India (5.8 %) | 18.3 | Turkey (36.3) |
| Papaya | India (43.7 %) >Brazil > Indonesia | 29.4 | Dominic Republic (312.7) |
| Pine Apple | Thailand (11.2 %) > Costa Rica > Brazil | 23.3 | Indonesia (124.5) |
| | | | |
| **Vegetables** | **China (49. 5%) > India (14 %) > USA (3.1 %)** | **19.6** | **Spain (39.3) > USA (32.5)** |
| Brinjal | China (57.9 %) > India (27.2 %) > Iran | 26.7 | Spain (68.5) |
| Cabbage | China (46. 4%) > India (12.8 %) > Russia | 29.2 | Republic of Korea (71.2) |
| Cauliflower & Broccoli | China (41.6 % ) > India (37.5 %) > Italy | 18.2 | Egypt (28.6) |
| Okra | India (72.9 %) > Nigeria > Sudan | 7.8 | Ghana (20) > Egypt (14) > India & Sudan (11.9) |
| Onion | China (26.3 %) > India (22.6 %) > USA | 19.3 | USA (54.6) > Netherlands (49.7) |

| | | | |
|---|---|---|---|
| Potato | China (23.9 %) > India (11.4 %) > Russia | 18.9 | USA (45.8) |
| Tomato | China (30.7 %) > India (11. 5 %) > USA | 33.9 | USA (88) > Spain (82) |

## RECENT IMPORTANT RECENLY RELEASED VEGETABLE VARIETIES:

| CROP | VARIETIES | SPECIALITY |
|---|---|---|
| **VEGETABLES** | | |
| Tomato | Arka Rakshak | 1st triple resistant hybrid (ToLCV, Bacterial wilt, Early blight) |
| Ash gourd | Pusa Urmi, Pusa Shreyali, Pusa Sabji Peth | |
| Bitter gourd | Pusa Aushadhi | |
| | Pusa Rasdhar | 1st variety for poly house cultivation, extra early |
| | Pusa Purbi | 1st small fruit variety of bitter gourd, rich in antioxidants and minerals |
| Brinjal | Arka Anand | |
| Carrot | Pusa Rudhira | Red coloured variety |
| | Pusa Ashita | 1st black coloured variety |
| | Pusa Kulfi | 1st whitish ((pale mustard col.) var. |
| | Pusa Vrishti | Tolerant to rainy season pink coloured |
| | Pusa Nayanjyoti | 1st temperate hybrid using CMS |
| | Pusa Vasuda | 1st tropical hybrid using CMS |
| | Pusa Payasa | 1st mustard coloured variety |
| Cauliflower | Pusa Betakesari | 1st ever indigenously bred biofertified β carotene (800-1000 µg/100g) rich var. |
| Chilli | Arka Khyati | |
| Coriander | Arka Isha | |
| Dolichos Bean | Arka Sambhram | |
| French Bean | Arka Arjun | |
| Knol khol | Pusa Virat | |
| Long melon | Pusa Utkarsh | 1st early maturing var. |
| Musk melon | Pusa Madhurima | |
| Makhana | Swarna Vaidehi | 1st makhana var. |
| Onion | Pusa Riddhi | Antioxidant rich var. |
| | Pusa Soumya | 1st bunching onion var. |
| Pea | Pusa Shree | |
| | Arka Apoorva | Whole pod edible pea |
| Potato | 2001P-55 | Red skinned hybrid |

| | | |
|---|---|---|
| Radish | Pusa Mridula | Globular red coloured var. |
| | Pusa Shuka | 1st green necked var. |
| | Pusa Sagarika | Purple fleshed var. |
| | Pusa Vidhu, Pusa Gulabi, Pusa Jamuni | |
| Ridge Gourd | Arka Prasana, Arka Vikram ($F_1$) | |
| Round melon | Pusa Raunak | |
| Summer squash | Pusa Pasand | |
| Water melon | Pusa Sarada | 1st Sarada melon var. (suitable for net house cultivation) |
| | Arka Madhura | Triploid seedless for protected cultivation |
| | Arka Muthu, Arka Akash, Arka Aishwarya | |
| Yard Long Bean | Arka Mangala | |
| **FLOWERS** | | |
| China Aster | Arka Adya, Arka Archana | |
| Rose | Arka Ivory, Arka Sukanya, Arka Pride | |
| Marigold | Arka Bangara, Arka Agni | |
| **FRUITS** | | |
| Mango | Pusa Sresth | For uniform packaging |
| | Arka Uday | |
| Lime | Rasraj (IIHR) | |
| Grape | Pusa Swarnika | Self thinning type |
| Walnut | Pusa Khor | Ultra HDP orchard |
| Guava | Arka Rashmi | |
| Rambutan | Arka Coorg Arun, Arka Coorg Patib | |

## INDIA'S STATE OF FOREST

- % of geographical area under forest cover in india-21.34 %
- In terms of density classes, area covered under dense forest-85904 sq km (2.61%)
- Moderately forest-31537 sq km (9.59%)
- Open forest-300395 sq km (9.14%)
- State with highest area for forest- Madhya Pradesh (77462 sq km)

- State with highest % of forest cover with respect to total geographical area-Mizoram (88.93)

## FOREST COVER OF INDIA: 2015

| Class | Crown density range(%) | Area (sq km) | %of geographical area |
|---|---|---|---|
| Very dense | >70 | 85904 | 2.61 |
| Moderately dense forest | 40-70 | 315374 | 9.59 |
| Open forest | 10-40 | 300395 | 9.14 |
| Total forest cover | | 701673 | 21.34 |
| Scrub | | 41362 | 1.26 |
| Non-forest | <10 | 2544228 | 477.40 |
| Total geographical area | | 3287263 | 100 |
| Total cover | | 92572 | 2.82 |
| Total forest and tree cover | | 479425 | 24.16 |

## Minmum support price for *kharif* crops for 2016-17 season

| Commodity | Variety | MSP for 2015-16 | MSP for 2016-17 season (Rs. per quintal) |
|---|---|---|---|
| Paddy | Common<br>Grade a | 1410<br>1510 | 1470<br>1510 |
| Jowar | Hybrid<br>Maldandi | 1570<br>1590 | 1625<br>1650 |
| Bajra | | 1275 | 1330 |
| Maize | | 1325 | 1365 |
| Ragi | | 1650 | 1725 |
| Tur(arhar) | | 4625 | 5050 |
| Moong | | 4850 | 5225 |
| Urad | | 4625 | 5000 |
| Groundnut in-shell | | 4030 | 4220 |
| Soybean | Yellow | 2600 | 2775 |
| Sunflower seed | | 3800 | 3950 |
| Sesamum | | 4700 | 5000 |

| | | | |
|---|---|---|---|
| Niger seed<br>Cotton | <br>Medium staple<br>Long staple | 3650<br>3800<br>4100 | 3825<br>3860<br>4160 |

## LIVESTOCK AND FISHERIESFOR PROSPERITY

- 3 new vaccines and 15 diagnostics kit for livestock diseases
- New chicken variety JHARSIM , 5 cross bred pig varities – Rani, Asha, HD K75, Jahrsuk, and Mannuthy white and one sheep variety Avishan
- 9 new breeds of livestock registered (160 total registered breeds )

## International Years Related to Agriculture observed by UN

2004- International year of rice

2008 - International year of potato

2009- International year of natural fibres

2010- International year biodiversity

2011- International year of forest

2014- International year of family farming

2015- International year of soil and Light (IARI Ph.D 2016)

2016- International year of pulses (theme- nutritious seed for sustainable agriculture) - (IARI PhD exam, 2016)

2017- International year of sustainable tourism

## Some Important Missions/Yojanas by GOI

**BGREI**- Bringing Green Revolution to Eastern India 2010-11, (aim is to address the constraints limiting productivity of rice based cropping system in eastern India).

**NAPCC**-National Action Plan on Climate Change

**NMSA**-National Mission on Sustainable agriculture

**PMBFY**- Pradhan Mantri Fasal Bima Yojana -Jan 13 2016, (to provide a more efficient insurance support to farmers).

**NMOOP**- National Mission on Oilseeds and Oil Palm.

**NCIP**- National Crop Insurance Programme.

**MIDH** -Mission for Integrated Development of Horticulture.

**NPF** (2007)-National Policy for Farmers.

**NFSA**-National Food Security Act-2013 (75% rural and 50 % urban population entitled for 5 kg food grain per person per month for priority house hold and 35 kg per month for Antyodaya Anna Yojana ( AAY)

**ISCAS**- Integrated Scheme on Agriculture Census and Statistics

**ARYA**- Attracting and Retaining Youth in Agriculture ( IARI Ph.D 2016, ICAR SRF 2016)

**NPBBDM**-National Programme on Bovine Breeding and Diary Development

**APMC**- Agriculture Produce Marketing Committee

**National Livestock Mission**- 2014-15

**Soil Health Card** scheme- Feb. 19 2015 in Rajasthan (slogan-Swasth Dhaara , Khet Hara).

**CCSAMMN**- Climate Change and Sustainable Agriculture, Monitoring, Modelling and Networking (provide creation and dissemination of climate change related information and knowledge).

**e-NAM** - 14 April, 2015 by PM , ONLINE platform with a physical market or mandi at backend enabling buyers situated even outside the state to participate in trading at local level. (IARI Ph.D 2016)

**PMKSY**- Prdhan Mantri Krishi Sinchayee Yojana (July 1, 2015 to boost irrigation , More crop per drop approach.

## WORLD FOOD PRIZE LAUREATES

- World food prize 2016-
  - The three-person team from the International Potato Center (known by its Spanish acronym CIP) – **Dr. Maria Andrade** of Cape Verde, **Dr. Robert Mwanga** of Uganda, and **Dr. Jan Low** of the United States – is being honored for their achievement in developing the single most successful example of micronutrient and vitamin biofortification – the **orange-fleshed sweet potato (OFSP).**
  - **Dr**. **Howarth Bouis-** Breeding High-Nutrient Staple Crops through biofertification
- World food prize 2015- Sir Fazle Hasan Abed (for his achievement in building an unique, integrated development organization that is hailed as most effective anti-poverty organisation in world)
- World food prize 2014- Sanjay Rajaram (480 varieties of rust resistance wheat)
- World food prize 2013- Chilton, Fraley, Montagu (In field of modern plant biotech)
- World food prize 2012- Daniel Hillel (Israel) for implementing micro irrigation in arid and semi-arid area

## INTERNATIONAL DAYS

- Feb 2- World Wetland Day (ICAR AGRONOMY NET-I 2016)
- Feb 28-National Science Day
- March 3- World Wildlife Day

- March 22 - (Theme is better water, better jobs), first started in 1993
- March 15-World Consumer Right Day (ICAR SRF 2016)
- March 21-International Day of Forest
- April 22-Earth Day ( 2016 theme-trees for the earth )
- April 26- World IPR Day
- May 4-Greenary Day
- May 22- International Day for Biological Diversity
- June 5- World Environment Day
- Sep 16- World Ozone Day
- October 16- World Food Day
- December 3- Agricultural Education Day (Amended by ICAR in 2016)
- December 5-World Soil Day (2016 theme- soils and pulses, a symbiosis for Life)
- December 10- Human Rights Day- (ICAR SRF -2016)
- December 23- Kisan Diwas

## ICAR UPDATES

- Present DG of ICAR- Dr. Trilochan Mohapatra ( also Secretry , DARE)
- President of NAAS- Dr. Punjab Singh
- President of ASRB- Dr. Gurubachan Singh
- Number of-

| | |
|---|---|
| KVKs (2015-16)-648 | Agricultural Universities-70 |
| Deemed Universities-4 | ICAR Institutes- 63 |
| National Research Centers- 15 | National Bureaues-6 |
| Directorates -14 | |

## REVOLUTIONS RELATED TO AGRICULTURE

Green revolution

- ✓ Food grain production
- ✓ First time started in 1966-67

- ✓ First adopted in Ludhiana, west Godavari, Tanjavaru (Tamil Nadu)
- ✓ Green revolution phase II -1983
- ✓ Father Of Green Revolution- Norman Borlaug
- ✓ Father of Indian Green revolution- M.S. Swaminathan
- ✓ Green revolution word coined by- William S. Gaud
- ✓ Evergreen revolution started in 2010

Yellow revolution

- ✓ Oilseed production (mustard sunflower)
- ✓ Father of yellow revolution –Sam Pitroda

White Revolution

Milk and milk products

Blue revolution

- ✓ Fish and marine product
- ✓ Blue revolution started in 1960
- ✓ Father of blue revolution –Dr Arun Krishna

Pink revolution- Prawn, Onion, Pharmaceutical

Grey revolution- Fertilizer

Brown revolution- Cocoa, Leather

Silver revolution-

- ✓ Egg
- ✓ Father of silver revolution- Indira Gandhi

Violet revolution- woollen product

Black revolution- crude oil and non-conventional energy

Red revolution-

- ✓ Meat and tomato
- ✓ Father of red revolution- Vishal Tewari

Round revolution – Potato

Golden revolution-

- ✓ Honey and jute
- ✓ Father of golden revolution- Nirapakh Tatej
- ✓ Horticulture (esp. fruit production)

Orange revolution- Citrus

Rainbow revolution-

- ✓ Integral development programme of agriculture, horticulture, forestry, sugarcane, fishery, poultry and animal husbandry
- ✓ Father- Nitish Kumar (CM of Bihar)

Concept of Total Revolution – Jay Prakash Narayan

Green Grass root Revolution is related with – System Of Rice Intensification

## ORGANIC FARMING

- ➢ Worldwide 1.8 million farm house hold in 162 countries are practising organic farming in 37 m ha land
- ➢ The countries with most agriculture land of organic are Australia (12 M ha). Argentina (3.8 M ha), USA (1.9 M ha)
- ➢ As per the available statistics, India's rank in terms of World's Organic Agricultural land was 15 as per 2013 data (Source FIBL & IFOAM Year Book 2015). The total area under organic certification is **5.71 million hectare** (2015-16). This includes 26% cultivable area with 1.49 million

Hectare and rest 74% (4.22 million Hectare) forest and wild area for collection of minor forest produces.

- India produced around **1.35 million MT** (2015-16) of certified organic products which includes all varieties of food products.
- Among all the states, **Madhya Pradesh** has covered largest area under organic certification followed by Himachal Pradesh and Rajasthan.
- Union Govt. announced setting up of National Organic Farming Research Institute (NOFRI) in Sikkim.
- Sikkim becomes first organic state in India.
- First organic farming institute to be set up in Gujarat in near future.
- The total volume of export during 2015-16 was **263687 MT.** The organic food export realization was around **298 million USD.** Oil seeds (50%) lead among the products exported followed by Processed food products (25%), Cereals & Millets (17%), Tea (2%), Pulses (2%), Spices (1%), Dry fruits (1%), and others.

[Source- APEDA, 2015-16]

## IMPORTANRT INTERNATIONAL SURVEYS (Important for ICAR SRF)

- India stands at 112$^{th}$ on World Economic Freedom Index in 2016
- India ranks 110$^{th}$ on Sustainable Development index 2016.
- India ranks 66$^{th}$ in Global Innovation Index 2016.
- India ranks 2$^{nd}$ in Global Retail Development Index 2016.
- India ranks 3$^{rd}$ in Renewable Energy Country Attractive Index 2016.
- India ranks 105$^{th}$ on Human Capital Index 2016.
- India ranks 4$^{th}$ in Global Slavery Index 2016.
- India ranks 20$^{th}$ on Climate Change Performance index
- India is at 70$^{th}$ in Good Country Index in 2016.

## Other Quick Facts:

Respiratory quotient

Carbohydrate-1, Fat- Less than 1, Tripalmitin-0. 7, Organic acid- More than 1 (i.e. 4), Anaerobe respiration – infinity

Protein content in pulses:-

| **Pulses** | **Protein content** |
|---|---|
| Chick pea | 22.2 |
| Pigeon pea | 21 |
| Mung bean | 24.5 |
| Urd bean | 24 |
| Lenil | 25.1 |
| Cow pea | 24 |
| Rajmash | 23.9 |
| Pea | 23.1 |

- Bonn Climate Change conference- May 2016
- All India use of NPK-8.2: 3.2: 1 (Recommended use of NPK 4:2:1) (Frequent asked question in exams)
- Nauru becomes 189$^{th}$ member of IMF, World Bank.
- The latest El Nino weather phenomenon has ended but could be replced by its stormy sister La Nina in coming months, the U. N. Meteorological agency said on July 28, 2016.
- WHO on 2016 declared that New Delhi is no longer the worst polluted city in world in terms of air quality In terms of PM2.5 measurement, New Delhi ranked as 11$^{th}$ worst city
- China Bug Chans Megastick (*Phobaeticus chani)* is declared as world's longest insect.

- Global agriculture leadership award 2016 presented to Ratan Tata by Indian Council of Food and Agriculture.
- Govt. reduced the import duty on wheat to 0%
- Organic farming is to be done on the banks of Ganga River under Paramparagat Krishi Vikas Yojana (PKVY)
- e- Pashuhaat portal lunched on Nov. 26, 2016 on the occasion of National Milk day.
- NITI Aayog (National Institution for transforming India) launched first ever " Agricultural Marketing and Farm Friendly Reforms Index".
- GM mustard DMH 11 is the genetically modified mustard developed by Centre for Genetic Manipulation of Crop Plants at Delhi University.
- AWARDS
    - Haryana bagged Best Horticulture State award 2016 by Indian Council of Food and Agriculture.
    - Best Agriculture state- Odisha
    - Best Animal Husbandry state- Punjab
    - Best Fisheries state –Chhattisgarh
- Father of hybrid sorghum -Neelamraju Ganga Prasad Rao passed away in 2016.
- World Bank declared Andhra Pradesh no 1 in energy efficiency
- More or less slogan of SRI belong to the state- Tripura
- SRI is introduced in India first time- Tamilnadu (2000)
- Water man of India and winner of Stockholm water Prize 2015- Rajendra Singh
- World's largest NGO - BRAC (Bangladesh Rural Advancement Committee- Sir Fazle Hasan Abed is Chairperson and Founder)
- Genetic garden of naturally occurring salt tolerant plants called halophytes was set up by M S Swaminathan Research Foundation in Tamilnadu

- Odisha govt. to roll out Biometrics Authentication for National Food Security Act Beneficiaries from January 2107
- Mobile application for farmers " Kisan Suvidha " launched by PM Narendra Modi on 19 March 2016.
- Pandit Deen Dayal Upadhaya Antodhyay Krishi Puraskar 2016 conferred to Smt. Krishna Yadav , an enterprising lady farmer of Najafgarh.
- Climate Smart Agriculture- concept by FAO (XIII Agriculture Science Congress 2017 at UAS, Bengaluru, theme was CLIMATE SMART AGRICULTURE).
- First ever International biodiversity congress held in New Delhi from 6-9 Nov, 2016.

## REVISED NAMES OF ICAR INSTITUTES

| OLD NAME | REVISED NAME |
|---|---|
| Central Soil and Water Conservation Research and Training Institute, Dehradun | Indian institute of soil and water conservation |
| Central Agricultural Research Institute, A & N | Central Island Agricultural Research Institute |
| Directorate of Maize Research, New Delhi | Indian Institute of Maize Research |
| Directorate of Rice Research, Hyderabad | Indian Institute of Rice Research |
| Directorate of Wheat Research, Karnal | Indian Institute of Wheat & Barley Research |
| Directorate of Water Management, Bhubaneswar | Indian Institute of Water Management |
| Directorate of Research on Women in Agriculture, Bhubaneswar | Central Institute for Women in Agriculture |
| Directorate of Oil Palm Research, Pedavegi | Indian Institute of Oil palm Research |
| Directorate of Oilseed Research, Hyderabad | Indian Institute of Oilseed Research |
| Directorate of Sorghum Research, Hyderabad | Indian Institute of Millets Research |
| NRC for Agroforestry, Jhansi | Central Agroforestry Research Institute |
| NRC for Citrus, Nagpur | Central Citrus Research Institute |

| | |
|---|---|
| ICAR Research Complex for Goa | Central Coastal Agricultural Research Institute |
| Project Directorate for Farming System Research, Modipuram | Indian Institute of Farming Systems Research |

## HEAD OF FAMOUS INTERNATIONAL AND INDIAN ORAGANISATIONS

FAO DG- JOSE GRAZINO DA SILVA

IRRI- Dr. Mathew Morell

WMO-DAVID GRIMES

IMD-Dr. K. J. Ramesh

IPCC-HOESUNG LEE

WORLD BANK-JIM YONG KIM

ICRISAT-Dr David Bergvinson

WHO- MARGARET CHAN

ISRO- Dr. A. S. Kiran KUmar

PPV&FRA- Dr. R. R. HANICHAL (IARI Ph.D. 2013)

NRRI-Dr. Himanshu Pathak

CRIDA-Dr. Ch. Srinivasa Rao



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