

2015-2016

General Agriculture

(For JRF and SRF exams)

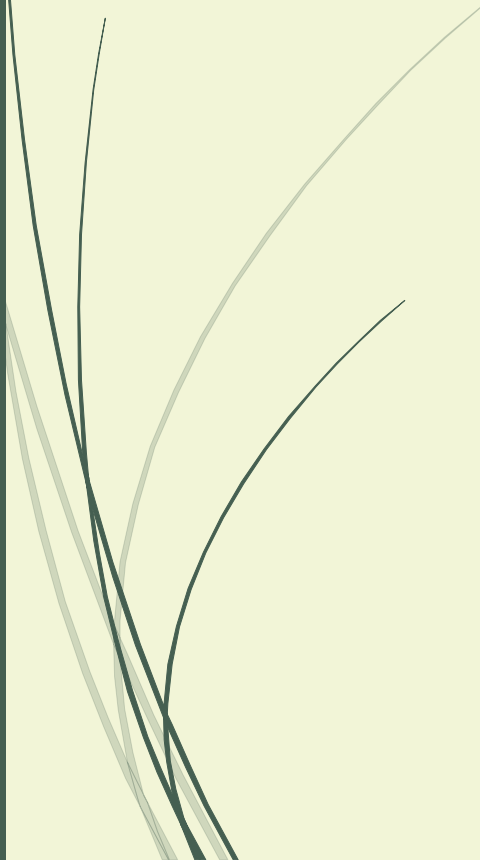
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WORLD AGRICULTURAL SCENARIO AND POSITION OF INDIA

- + RICE: CHINA > INDIA > INDONESIA
- + MAIZE: USA > CHINA > BRAZIL (INDIA 6th)
- + WHEAT: EUROPE UNION > CHINA > INDIA > USA
- + GROUNDNUT: CHINA > INDIA > NIGERIA
- + SUGARCANE: BRAZIL > INDIA > CHINA
- + TOTAL CEREALS: CHINA > USA > INDIA
- + COARSE CEREALS: USA > CHINA > BRAZIL > INDIA
- + TOTAL PULSES: INDIA – 1st
- + MUSTARD & RAPESEED: CHINA > CANADA > INDIA
- + VETETABLES: CHINA > INDIA > USA
- + FRUITS & VEG: CHINA > INDIA
- + COTTON: CHINA > USA > INDIA
- + TOBACCO: CHINA > BRAZIL > INDIA
- + TEA, JUTE & ALLIED FIBRES: INDIA – 1st
- + COFFEE-INDIA- 6th
- + CATTLE POPULATION: 1st INDIA (16.5%)
- + BUFFALO POPULATION: 1st INDIA (56.7%)
- + MILK PRODUCTION: 1st INDIA (15%)
- + EGG PRODUCTION: CHINA > USA > JAPAN > INDIA
- + TOTAL AGRICULTURAL LAND IN THE WORLD: 7.5%
- + TOTAL AREA OF INDIA- 328.7 m ha-2.4% of world-7th position
- + TOTAL ARABLE LAND in INDIA- 162 m ha-2nd after USA
- + LOWEST AGRICULTURAL BASED COUNTRY: U.K. (6%)
- + HIGHEST AGRICULTURAL BASED COUNTRY: MALAVI (92%)
- + TOTAL AGRICULTURAL BASED POPULATION
- + TOTAL IRRIGATED AREA- 58 m ha-21% OF WORLD-1st position

Some Important facts about Irrigation in INDIA and world (2014-2015)

- Punjab (98.1 %) > Haryana (87.6%) > UP (75.9%)
- Highest area under irrigation state in India: **U. P**
- **Sugarcane** (93.7 %) highly irrigated crop in India
- Highest non-irrigated area in India : **Mizoram**
- Area under micro irrigation system in India: **7.73Mha (2014-15)**
- Area under drip irrigation in India: **3.37 Mha** (Highest area Maharashtra)
- Area under sprinkler in India (2014-15): **4.35 Mha** (Highest in Rajasthan)
- Sources of irrigation tube well (57 %), Canals (32 %)
- USA is having **highest micro irrigation** system: **Sprinkler**
- Rice is the world's largest irrigated cereal, covering 29% of the total irrigated crop area and almost half of the irrigated cereals area
- In the case of paddy rice cultivation, in addition to water for irrigation a layer of **10-20 cm** of water is required for land preparation and plant protection
- Over **324 mha** are equipped for irrigation worldwide.
- 42% of the world irrigation is located in only 2 countries: **China and India**
- In 2010 China became the country with the largest irrigation area
- Total sprinkler irrigation in the world 35 mha

REVOLUTIONS IN AGRICULTURE

1. Green revolution: phase-1 (1966-67) and phase 2 (1983)

- ✓ First adopted in Ludhiana (Punjab), West Godhavari (A.P), Tanjavuru (Tamil Nadu)
- ✓ Related to food grain production
- ✓ Crops used: Wheat, Rice, Sorghum and Maize
- ✓ Father of green revolution: Norman Borlang, USA
- ✓ Indian Green Revolution: M. S. Swaminathan,
- ✓ Green revolution word coined by: William S Goud (U. K)
- ✓ Ever green revolution started: 2010

2. Yellow revolution:

- ✓ Related to Oil seed production
- ✓ Especially on mustard and sunflower

- ✓ Father of yellow revolution: Sam Pitroda
3. **White revolution:**
 - ✓ Related to milk and milk products
 - ✓ Father of white revolution: Varghese Kurien
 - ✓ Milk man of India: Verghese Kurian
 4. **Blue revolution:**
 - ✓ Related to fish and marine products
 - ✓ Started in 1960
 - ✓ Father of blue revolution: Dr. Arun Krishnan
 5. **Pink revolution:**
 - ✓ Related to Prwan, onions and Pharmautieicals
 - ✓ Father of pink revolution: Durgesh patel
 6. **Grey revolution:** Fertilizers
 7. **Brown revolution:** Cocoa and Leather
 8. **Sliver revolution:**
 - ✓ Egg
 - ✓ Promote by Indira Gandhi
 9. **Violet revolution:** woolen products
 10. **Black Revolution :** Crude oil and Non-conventional energy
 11. **Red revolution:**
 - ✓ Meat and Tomatoes
 - ✓ Father of red revolution- Visha Tewari
 12. **Round Revolution:** Potatoes
 13. **Golden revolution:**
 - ✓ Honey and Horticulture
 - ✓ Father of golden revolution: Nirpakh Tutej
 14. **Rainbow revolution:** Fruits, considered as second green revolution
 15. **Ever green revolution:**
 - ✓ Started in 11th plan
 - ✓ Especially for north eastern states

Fertilizer consumption states wise (2014-15)

- ❖ 1st is Punjab – 266 kg/ ha,
- ❖ 2nd is Andhra Pradesh – 244 kg/ ha,
- ❖ 3rd is Tamil Nadu – 227kg/ ha,
- ❖ 4th is Haryana -225kg/ha
- ❖ All India average is 144 kg/ha.
- ❖ Lowest fertilizer consumption states are Nagaland, Arunachal Pradesh, Sikkim.
- ❖ U.P has highest **total fertilizer consumption state**
- ❖ Imported fertilizer- Potash from Jordan and Tunisia
- ❖ India is third in fertilizer production and second in consumption
- ❖ NPK ratio in 2013-14 was **8.2:3.2:1 (India)**
- ❖ NPK ratio in 2013 in Punjab was **61.7:19.2:1**; in Haryana, it was **61.4:18.7:1**; in Rajasthan, it was **44.9:16.5:1**; and in Uttar Pradesh, it was **25.2:8.8:1**
- ❖ Standard NPK for cereals: **4:2:1** and Pulses: **1:2:1**

Pesticide consumption

- ❖ The agricultural states like **Punjab** and **Haryana** are the toppers in pesticide consumption in India
- ❖ Crop- 1st Paddy (28 %), 2nd Cotton (20 %)
- ❖ Total registered pesticides in India- 261
- ❖ Total banned pesticides in India- 28
- ❖ Central Insecticides Board and Registration Committee (CIB & RC)-To facilitate the registration of safe, efficacious and quality pesticides for domestic use and export

Transgenic crops

- Final approval committee on release of transgenic in India – is GEAC(Genetic Engineering Approval Committee)
- Leading countries in transgenic use - USA>Brazil > Argentina>India (4th)>Canada
- Leading transgenic crops - Soybean >Cotton>Maize > Canola
- Area under transgenic plants in India (2014)-11.6mha.
- Area under Bt- cotton(94.75% of cotton production): **Gujarat stands first**
- In the past year, the government has approved field trials of GM crops for field trails include transgenic **Rice, Cotton, Maize (corn), Mustard, Brinjal and chickpea**

List of awardees in agriculture sector 2015-16

- ✓ **2014 world food prize-** Dr. Sanjaya Rajaram for global wheat production
- ✓ **Dr. Amrita patel-** Mahindra samridhi India agri life time achievement award (Krishi Siromani Samman) for implementation of NDDB operation flood programme
- ✓ **Sir Fazle Hasan Abed of Bangladesh** - 2015 winner of the World Food Prize. He is the founder of Bangladesh Rural Advancement Committee (BRAC, has been hailed as the most effective anti-poverty organization in the world

Some Important Facts about Agriculture

- ✓ Total production of milk : In 2014 is **140 mt**
- ✓ Total production of coffee in 2008-09 was **5.25 million bags (one bag =60 kg)**
- ✓ Production of natural rubber in 2006-07 was **9.13 lakh tonnes (4th place)** and productivity was **1813 kg/ha.**
- ✓ Total egg production – In 2014 is 7500 crore numbers. Andra Pradesh stands first in egg production
- ✓ Total fish production in 2013-14 is **6.4 million metric tonnes**
- ✓ Total wool production in 2013-14 is **46.4 million kg (raw wool)**
- ✓ Total meat production in 2013-14 is **6.3 million tons**
- ✓ **Poverty of India: 21.9% (2012-13)**
- ✓ Contribution of agriculture and allied sectors in Gross domestic product was **54.5%** in **1950-51** and is reduced to **16 %** in **2015.**
- ✓ Agriculture is the primary source of livelihood for about 58 % of India's population
- ✓ Agriculture accounts for about **10 %** of the total export (**2014-15**)
- ✓ Agriculture accounts for about **3.4 %** of the total import.
- ✓ Highest exported: **Cereals**
- ✓ Highest imported: edible oil and pulses
- ✓ There are 46 export authorities in India
- ✓ Gapnet named software developed by APEDA for the knowledge of pesticides, its issues and quality of grapes.
- ✓ Cropping intensity of India is **140.5%**
- ✓ Contribution of different banks in agriculture:

Commercial bank- 73.89 %

Government bank-16.88 %

Gramin bank- 9.46 %

- ✓ Targeted agriculture development rate- 4 % but current agriculture development rate 1.4 %

ICAR: (Present scenario-2015-16) (Source: ICAR website)

- Union Minister of Agriculture and Farmer welfare is the ex-office President of the ICAR society (President- Radha Mohan Singh).
- In last Independence Day address, Prime Minister Narendra Modi announced that Seven decade-old Agriculture Ministry will be renamed as ‘**Agriculture and Farmers’ Welfare Ministry**
- Secretary, Department of Agricultural Research & Education Ministry of Agriculture, Govt, of India & Director General, ICAR-the Principal Executive Officer of the Council. (Present DG – **Dr. T. Mahapatra**)
- Agricultural Scientists Recruitment Board ,Chairman-**Dr. Guru Bachan Singh** (Agronomist)
- Deputy Directors-General (8)
- Additional Secretary (DARE) and Secretary (ICAR)
- Additional Secretary and Financial Advisor
- Assistant Directors-General (24)
- Directorates /Project Directorates -15
- National Bureaux-6 [New- NBAII, Bengaluru and NBAIM, Mau (UP)]
- Deemed Universities-4
- State Agriculture Universities- 73
- National Research Centers (NRCs) – 14
- AICRPs- 60
- Institutes- 61
- Network projects-19
- Deputy Chairman, Planning Commissions- **Montek Singh Ahulwalia.**
- Chairman of National Commission for Farmers- **Dr. M.S. Swaminathan**

- Central agricultural universities-2
- Network projects-18
- Zonal project directorate – 8
- KVKS- 642

Chief/Director of Institutes of National and International bodies

- ICAR: DG- **Dr. T. Mahapatra**
- ASRB: Dr. **Gurubachan Singh** (Agronomist)
- UN Secretary: **Mr. Ban Ki Moon**
- UN Members- **193** countries
- International Monetary Fund(IMF) New chief: **Christine Lagarde**
- New DG of FAO: **Jose Graziano Da sliva**
- New chairman of NABARD: **Dr. Harish Kumar Bhanwala**
- IFPRI: DG: **Shenggen Fan**
- PPV &FRA-**R. R. Hanchinal**
- Governor of RBI: **Raghuram Rajan**
- President of World Bank: **Jim Yong Kim**
- World bank chief economist : **Kaushik Basu**

FAO International year

- ✓ 2014- International Year of Family Farming (UN)
- ✓ 2015- International year of soils
- ✓ 2016- International year of pulses
- ✓ 2017- International Year of Sustainable Tourism for Development

Advance production estimates of major crops

- India's food-grain production will report a decline of 3% in 2014-15.
- The 1st Advance Estimates of production of major Kharif crops for 2015-16 have been released by the Department of Agriculture, Cooperation and Farmers Welfare here today. As per 1st Advance Estimates, the estimated production of major crops during Kharif **2015-16** is as under:

Rice – 90.61 mt

Wheat-94.7 mt

Coarse Cereals – 27.88 mt

Maize – 15.51 mt

Cotton – 33.51 m bales (of 170 kg each)

Sugarcane – 341.43 mt

- ✓ West Bengal is the highest Rice producing state in India
- ✓ Largest Total Food Grains producing state in India is Uttar Pradesh
- ✓ Largest Wheat producing state in India is Uttar Pradesh
- ✓ Largest Coarse Cereal producing state in India is Karnataka
- ✓ Largest Sugarcane producing state in India is Uttar Pradesh
- ✓ Highest Sugar producing state in India is Maharashtra
- ✓ Largest Cotton producing state in India is Gujarat
- ✓ Largest Jute producing state in India is West Bengal
- ✓ Highest produced coarse cereal- Maize followed by Bajra
- ✓ USA is having highest area under coarse cereals 37.5 mha and India stands 3rd (29.0) mha
- ✓ Rajasthan has highest area under coarse cereals 7.13 mha
- ✓ Karnataka stands 1st in coarse cereals production

Table: Estimated food grain production of India (mt and m bales for cotton)

Particulars	2013-14	2014-15
Total Food grains	265.57	257.07
Rice	106.65	103.04
Wheat	95.85	95.76
Coarse cereals	43.29	39.83
Sugarcane	350.02	354.95
Cotton	36.59	35.15
Pulses	19.78	18.43
Oilseeds	32.75	29.83

(Source: Ministry of Agriculture and Famer's welfare, 2015)

Pulse production scenario in India and world (2014-15)

- ❖ The total pulses production in India (estimated) – **18.43 mt (2014-15) and 19.41 mt (2015-16)**
- ❖ The area under pulses in India has increased from **19 mha** in 1950-51 to **27 mha** in 2014-15
- ❖ The highest produced pulse crop is **Chickpea**, followed by **Tur**
- ❖ India's largest total pulses producing state- **Madhya Pradesh (23 %)**.

- ❖ India only exports- **Chickpea** and more imported pulse is **Peas**
- ❖ India is largest **pulse processor** in the world
- ❖ **Gujarat** is having highest productivity of pulses
- ❖ **Canada** is largest exporter of pulses
- ❖ India's average pulse productivity **730 kg/ha** whereas, Canada's **1900 kg /ha**
- ❖ Madhya Pradesh, Maharashtra, Rajasthan, Uttar Pradesh and Karnataka are the top five pulses producing States
- ❖ State wise rank in pulses production: MH>RJ>UP>MP (Kharif pulses), MP>UP>RJ>MH (Rabi pulses)

Table: Production of pulses in India (mt)

Pulses	2014-15	2015-16
Tur (Pigeon pea)	2.81	2.55
Gram (Chickpea)	7.33	8.09
Moong (Green gram)	1.50	1.55
Urad (Black gram)	1.90	1.74

(Source: Directorate of Economics and Statistics, 2015-16)

Oil seed production scenario in India and world

- ✓ Total oilseed production of India- **19.50 mt** (2014-15) & **19.84 mt** (2015-16)
- ✓ India's largest oilseed producing state is Gujarat and top **groundnut** producing state of India.
- ✓ Rajasthan is India's top **Rapeseed & Mustard** producing state, followed by Madhya Pradesh and Haryana.
- ✓ India's top **Soyabean** producing state is Madhya Pradesh
- ✓ Karnataka is largest producer of **Sunflower** in India

Table: Estimated oil seed production in India (in mt)

Crop	2014-15	2015-16
Groundnut	4.85	4.40
Soyabean	13.5	14.3
Sunflower	0.37	0.35
Sesamum	0.73	0.71
Rapeseed	5.0	5.8
Safflower	0.05	0.08

(Source: Ministry of Agriculture and Famer's welfare, 2015)

Minimum support price (MSP) for agriculture commodities in India

- ✚ **Minimum Support Price (MSP)** is a form of market intervention by the Government of India to insure agricultural producers against any sharp fall in farm prices. The minimum support prices are announced by the Government of India at the beginning of the sowing season for certain crops on the basis of the recommendations of the **Commission for Agricultural Costs and Prices (CACP)**.
- ✚ The National Agricultural Cooperative Marketing Federation (NAFED), National Cooperative Consumers' Federation (NCCF), Central Warehousing Corporation (CWC) and Small Farmers Agri Business Consortium (SFAC) will be the nodal agencies for procurement of oilseeds and pulses, and losses if any, incurred by the nodal agencies in such operations would be fully reimbursed.
- ✚ MSP are currently announced for **25** commodities. They are as follows,
 - Cereals (7):** Paddy, Wheat, Barley, Jowar, Bajra, Maize and Ragi
 - Pulses (5):** Gram, Arhar/tur, Moong, Urad and Lentil
 - Oilseeds (8):** Groundnut, Rapeseed/mustard, Toria, Soyabean, Sunflower seed, Sesamum, Safflower seed and Niger seed
 - Others (5):** Copra, Raw cotton, Raw jute, Sugarcane, Virginia flu cured (VFC) tobacco

Table: Minimum Support Prices Recommended by CACP and Fixed by Government

Crops	2014-15 (Rs/Qt)	2015-16 (Rs/Qt)
Kharif crops		
Paddy (Common)	1360	1410
Paddy (Grade A)	1400	1450
Jowar (Hybrid)	1530	1570
Jowar Maldandi	1550	1590
Bajra	1250	1275
Ragi	1550	1650
Maize	1310	1325
Tur	4350	4625
Moong	4600	4850
Urad	4350	4625
Groundnut	4000	4030
Sunflower seed	3750	3800
Soyabean black	2500	-
Soyabean yellow	2560	2600
Sesamum	4600	4700
Niger seed	3600	3650
Medium staple cotton	3750	3800
Long staple cotton	4050	4100
Rabi crops		
Wheat	1450	1525

Barley	1150	1225
Gram	3175	3425
Lentil	3075	3325
Rapeseed/ mustard	3100	3350
Safflower	3050	3300
Commercial crops		
Jute	2700	-
Sugarcane	230	-
Copra (Milling)	5550	5950
Copra (Ball)	5830	6240

(Source: Press Information Bureau, Government of India)

National food security bill

- ✓ Started in Aug 20, 2013 with the aim of “Food for everyone”

Objectives:

- ✓ 75 % of rural population and 50 % of urban population will get 5 kg cereals/person/month
- ✓ Cost of wheat Rs. 2 per kg of wheat, Rs. 3 per kg of rice and Rs. 1 per kg of millets

Initiatives to increase agriculture profitability by government of India- 2015

1. **Soil Health Card (SHC) scheme:** is being implemented under which the farmers can know the major and minor nutrients available in their soils which will ensure judicious use of fertilizer application and thus save money of farmers. The balanced use of fertilizer will also enhance productivity and ensure higher returns to the farmers.
2. **Neem Coated Urea scheme:** is being promoted to regulate urea use, enhance its availability to the crop and reduce cost of fertilizers application. The entire quantity of domestically manufactured urea is now neem coated.
3. **Parampragat Krishi Vikas Yojana (PKVY):** is being implemented with a view to promoting organic farming in the country. This will improve soil health and organic matter content and increase net income of the farmer so as to realise premium prices.
4. **The Pradhan Mantri Krishi Sinchai Yojana (PMKSY):** is being implemented to expand cultivated area with assured irrigation, reduce wastage of water and improve water use efficiency through ‘Per Drop More Crop’
5. 13 January 2016 approved the New Crop Insurance Scheme, ‘**Pradhan Mantri Fasal Bima Yojana**’ to boost the agricultural sector. Highlights of the scheme are:

- ✓ Farmers will pay a uniform premium of only 2 % for all Kharif crops and 1.5% for all Rabi crops.
- ✓ In case of annual commercial and horticultural crops, farmers will pay a premium of only 5 %.

Indian states first in following crops

Apple: Jammu & Kashmir	Groundnut: Gujarat	Sugarcane: Uttar Pradesh
Rice: West Bengal	Jute: West Bengal	Soyabean: Madhya Pradesh
Bajra: Rajasthan	Mango: Uttar Pradesh	Sunflower: Karnataka
Bamboos: Assam	Maize: Uttar Pradesh	Tea: Assam
Bananas: Tamilnadu	Mustard: Rajasthan	Tobacco: Andhra Pradesh
Barley: Uttar Pradesh	Onion: Maharashtra	Turmeric: Andhra Pradesh
Cashewnut: Kerala	Pepper: Kerala	Wheat: Uttar Pradesh
Chillies: Maharashtra	Paddy: West Bengal	Tur: Uttar Pradesh
Cotton: Gujarat	Potato: Uttar Pradesh	Coconut: Kerala
Wheat: Uttar Pradesh	Ragi: Karnataka	
Gram & Pulses: Madhya Pradesh	Rubber: Kerala	
	Silk: Karnataka	