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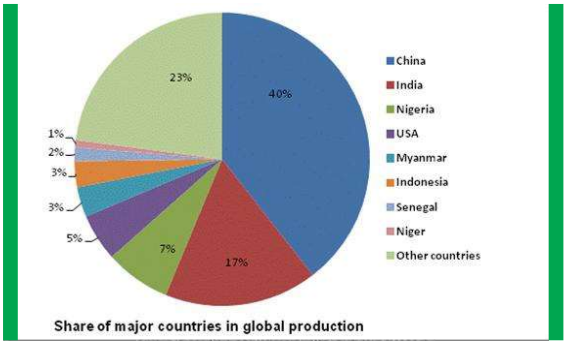
Global groundnut scenario: India vs. other nations

The triennial average data (2011-2013) of area, production and yield indicate that annually 421 lakh tonnes of groundnut are produced in the world from a cropped area of 249 lakh ha with an average productivity of 1688 kg ha^{-1}. Though, considering the cultivated area (51.1 lakh ha), India ranks first, followed by China and Nigeria, the production and yields are comparatively less. In



Share of major countries in global production

comparison, China holds the most promising figure in production (166.3 lakh tonnes) and USA in yield (4.3 t ha^{-1}) of groundnut. Consequently, China had maximum share (approx. 40%) followed by India (approx. 17%) in global groundnut production. Other Asian countries like Myanmar and Indonesia cultivate groundnut in far less areas than India, however the yield values recorded were higher than India over the last three years. Among the African countries, Nigeria contributed a fair share of total global production (7.2%) over Senegal and Niger.

Declining areas under cultivation, lesser spread of improved cultivars and production technologies among farmers and unpredictable climatic variability can be highlighted as production constraints of groundnut in India.

Triennial (2011-2013) average of area, production and yield of major groundnut producing countries

Country	Area (lakh ha)	Production (lakh tonne)	Yield (kg ha^{-1})
China	46.7	166.3	3562
India	51.1	70.4	1367
Nigeria	23.7	30.1	1268
USA	5.0	22.0	4330
Myanmar	8.9	13.8	1560
Senegal	7.8	6.4	827
Indonesia	5.4	12.0	2234
Niger	7.2	3.2	452
World	249.3	420.9	1688

***Source:* FAOSTAT**

(Input: Debarati Bhaduri and K. Chakraborty)

PBS 29148: A new source for confectionery traits in groundnut

The groundnut genotypes which possess low oil, high protein content, high O/L ratio, high sugar content, low free amino acids, etc. along with large seed size are considered as confectionery type. An advanced breeding line PBS 29148 of Virginia bunch habit group has been identified as a source of confectionery traits. Its kernels have low oil content (44.2%), and high protein content (35.8%). Other biochemical constituents observed are sugar content (5.5%), free amino acids (1.7 mg/g) and phenols (2.5 mg/g). Its kernel size is large with 67g hundred kernel weight and having length and width of kernel as 19.1 and 10.6 mm, respectively. The yield of this genotype was 1567 kg pods per hectare with 42.3% harvest index and 67% shelling outturn. This genotype may be used in further breeding programme for low oil, and high protein content and large seed size.

(Inputs: M.C. Dagla, Narendra Kumar, Ajay B.C. and M.K. Mahatma)

A new fungus-induced gene identified in groundnut

Plants produce cell wall-associated polygalacturonase-inhibiting proteins (PGIPs), whose over expression improve the resistance to fungal and bacterial necrotrophs in different plants by inhibiting the polygalacturonases (PGs), the cell wall degrading enzyme produced by the pathogens. The PG–PGIP interaction limits the aggressive potential of PGs, favours the accumulation of elicitor-active oligogalacturonides in the apoplast and causes the activation of defense responses. PGIPs are encoded by small gene families, identified in several plants including oil seed crops such as soybean, bean, and mustard; however no reports were available for groundnut. Hence an attempt was made to identify a gene for PGIP like protein in groundnut. Using a set of degenerate primers, a sequence of about 600 bp length was cloned from cDNA synthesized from stem rot infected groundnut leaf tissues. Sequence analysis confirmed that the sequence has distinct but very closely related DNA sequences to the earlier reported PGIP gene sequences. For the first time, a partial sequence of fungal induced PGIPs gene family in groundnut has been submitted to NCBI database (Acc. No. KP844637). The temporal expression profiles of the gene revealed its comparatively early induction in susceptible than that of tolerant genotypes. Further the gene expression showed a distinct variation among genotypes. The study suggests the probable role of the gene in defense against stem rot disease in groundnut; hence further a detailed study for the characterization and mode of action of PGIP can be made to use it as a candidate gene against the fungal diseases in groundnut.

(Inputs: Sujit K. Bishi, Dinesh D. Vakharia and Mahesh K. Mahatma)

Sporadic incidence of *Spodoptera litura* in summer groundnut

The tobacco caterpillar, ***Spodoptera litura*** (Fab.), a major defoliator pest of groundnut generally occur in rainy season crop. Apart from groundnut it has been known to feed on 40 species of cultivated crops in India. It has been reported to inflict yield losses up to 55% in groundnut during kharif. Rarely incidence can be seen during the summer crop. Overlapping generations of ***S. litura*** was seen where the different stages of life cycle were found in the groundnut field at same time. The larvae were found near the base plants during day time and defoliate during night time. It has been observed that the moth activity was severe and the male moth catches in the pheromone traps ranged between 9 and 12 moths/ trap/ week. A survey was conducted during summer 2015 in groundnut fields of Saurashtra region. Foliar damage was observed in the range of 8-15% in the farmer's field at different talukas of Junagadh, Gir-Somnath, Porbandar, Rajkot and Amreli. The possible reasons for the sporadic incidence of ***S. litura*** may be due to the summer showers received during 11th standard week i.e., second week of March, 2015 coupled with the favourable range of temperatures (20 to 39 °C). There was no such incidence reported in the past three years of survey.

***Spodoptera* larva feeding on leaflet**

Foliar damage in different talukas of Saurashtra

Taluka	Foliar damage (%)
Junagadh	12.0
Manavadar	08.0
Mendarada	13.0
Dhoraji	08.0
Bagasara	10.0
Bilkha	11.0
Amreli	10.0
Vadiya	12.0
Talala	10.0
Kodinar-Una	15.0

(Input: Nataraja M V, Jadon K S and Thirumalaisamy P P)