

PARB NEWSLETTER

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PARB's measures to control DENGUE

The government of Punjab is giving special attention to control dengue by all means. Keeping in view the directions of government, PARB also took practical measures to control dengue in office premises. The following activities were done and regularly monitored by the admin department of Punjab Agricultural Research Board (PARB):

- Dengue days, as celebrated by Punjab Government are regularly observed in office
- Inspection of all the office, cleaning of office space, wash rooms, removal of water from dispenser and plant trays, checking of leakage from taps
- Spray in lift and dead stock store, cleaning of roof,
- Staff awareness hour observed
- Regular sprays in selected areas
- Cleaning of main entrance
- Prepared and displayed promotional material for the awareness of staff like brochures, pamphlets
- Removal of rainy water from roof and balcony, spray on selected sites, inspection for dengue larvae



This is our mentor, Dr. Norman Borlaug the pride of sub-continent , the inventor of Green Revolution in Pakistan

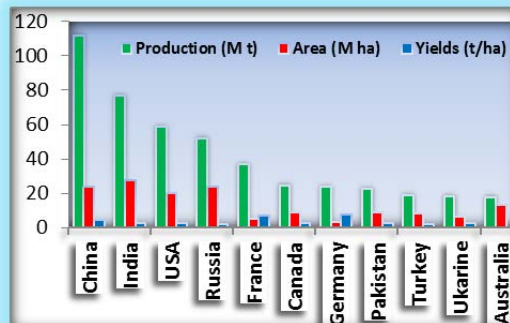
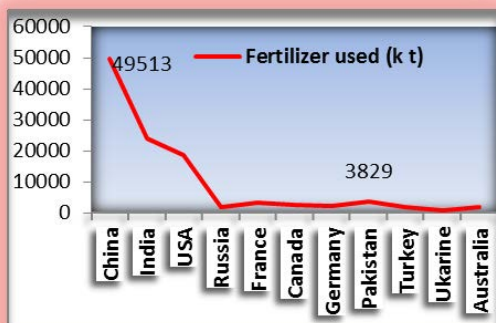
Research Foresight on New Ideas

Wheat Production, Fertilizer Use & Its Mitigation

Wheat (*Triticum aestivum* L.) provides 20% of human's food energy supply and serves as main source of protein in developing countries including Pakistan. Global production of wheat is 647.30 M t and there is around 135 M t trade annually in last five years, 71 % of which is sourced from USA, France, Canada, Australia, Russia and Argentina (FAO stat, 2012). Among top 10 highest wheat yields producing (per unit area) countries, Germany (7.47 t ha⁻¹) and France (6.92 t ha⁻¹) are always at the top as compare to Pakistan (2.58 t ha⁻¹) (IFADATA, 2012). The demand for wheat crop is rapidly increasing

with growing population and is expected to increase 60% by 2050 in developing nations (Rosegrant and Agcaoili, 2010) against 2.5 % increase in wheat production per year. This slightly increase in wheat production would be better through agronomic practices, improved cultivars, balanced nutrition and various other approaches. Approximately, 18 M t quantity of sources of major nutrients (N, P₂O₅, K₂O) are used by top ten wheat producing countries which is 15% of the total nutrient and 83% of the fertilizer is being used in wheat crop. The greatest in-

crease in fertilizer usage, between 40-46%, in last fifteen has been recorded in China, India, USA, Russia and Pakistan than rest of the nations. *The main challenge is to ensure careful, efficient and targeted use/management of fertilizers, which is only possible through use of spectral reflectance indices (important component of recent advances in agronomy), so that future growth in food production can be achieved.*



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PARB's Research Themes

Research issues are organized under 5 themes, each headed by Executive Member as Theme Leader:

1. Enhance productivity of major cropping system on sustainable basis
2. Promote diversification & commercialization
3. Conserve resources & protect environment
4. Improve competitiveness by Value addition
5. Promote knowledge based agricultural policies

For details please visit our website www.parb.gop.pk

Progress of PARB's Projects

Genetic Improvement of Groundnut for herbicide and disease resistance

Objectives:

- ◆ Estimation of genetic diversity in local peanut germplasm
- ◆ Development of transgenic herbicide resistant peanut genotypes
- ◆ development of breeding material tolerant to leaf spot disease and short term strategy for its control

Cost : Rs. 26.230 Million

Project Duration: 36 months

Project Strategy:

1. Resistant varieties for leaf spot disease
2. BAR/ESPS genes used in other crops to induce genetic resistance to herbicides has to be introduced in commercial varieties through biotechnology

Project Success:

This project has developed three good quality varieties i.e., SUDAN, CGS83, BARI-89 which are moderately resistant to leaf spot disease

Commercialization Strategy:

1. The three varieties are being included in the regional trials.
2. The elite lines are being distributed to all breeders to be included in their breeding programs.

Insecticidal Bioactivity of essential Oils of Local Medicinal Plants against Insect Pests of stored wheat

Objectives: To evaluate the bioactivity of the extracts and essential oils of indigenous plants for their insecticidal against insect pests of stored wheat

Cost: Rs. 4.804 Million

Project Duration: 48 months

Project Strategy: Essential oils extracts and components from more than 50 plant species, collected locally, belonging to different families, has been studied for their antifeedant, repellent and fumigant toxicity.

Project Success:

The research has proved that *Azadirachia Indica (Neem)*, *Curcumma Longa (Tumeric)*, *Datoora Inoxia*, *Euclalytus Globulus (Safeeda)*, *Nicotinia Tobacco (Tobacco)* and *Colocynthus Citrus (Tuma)* are best medicinal plants against stored wheat.

Commercialization Strategy:

1. The product prepared from various materials by extracting with ethanol is being tested on farmers' and food department storage for their efficacy
2. The private sector is being collaborated to prepare the final best product and sell to farmers on commercial scale.

Seminar held at UAF

AGRI NEWS

An international seminar on Phenotypic and molecular characterization of indigenous chicken, goats and their wild relatives held at Department of Animal Breeding and Genetics (ABG). Chief guest Minister for Agriculture & Livestock Punjab Malik Ahmed Ali Aulakh said that our forefathers have introduced indigenous farm animals but with the passage of time less attention was paid to the characterization and preservation. He thanked the participants and said that government is providing substantial funds to PARB for conducting research in crops, livestock, and forestry and fishers sectors. Foreign participants also attended the seminar and took part in valuable discussion.

Participation in International Events

Funded by PARB

Dr. Abid Mehmood Director Cotton Research Institute AARI and Muhammad Azhar Ali Director Post Harvest Research Centre AARI attended Minia International Conference for Agriculture and Irrigation at Egypt. The theme of the conference was to bring together experts to exchange information, particularly to enhance the production of crops, horticulture and livestock in water scarce areas of the world. Azhar Ali commented in his report that post-harvest losses can be reduced by the use of chemicals and non-destructive technique. Dr. Abid said that improved quality of cotton especially with more staple length should be grown in Pakistan. Besides this, need is to promote drip irrigation and use of biotechnological tools in order to understand CLCV resistance in cotton. They also emphasized to allow frequent visits of international research stations in order to solve global issues like drought and disease.

Dr. Muhamamd Kashif Saleemi Assistant Professor Pathology from UAF attended 3rd Mediterranean Poultry Summit of WPSA & 6th International Poultry conference. In his reported submitted to PARB he informed that coordinated research with modern scientific approach can generate better results for poultry industry. He further commented that such congress is good forum where poultry related knowledge, expertise, technology and innovations can be shared globally. *“These conferences should be attended by the researchers of developing countries so that they would be able to replace conventional scientific approaches into modern”* he said.

This section truly reflects the views of scientists taken from their debriefing reports

Project’s Monitoring in Glimpse



Development of transgenic sugarcane against abiotic stress at NIBGE Faisalabad



Improvement of salt tolerance in wheat through biotechnology at NIBGE Faisalabad



Economics of livestock productions and its marketing at Livestock Research Institute Bhadurnagr Farm Okara



Enhancing performance of buffalo through improved feeding management at UVAS Patoki