Breeding Program Assessment Tool
maximizing genetic gain
http://plantbreedingassessment.org

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BPAT Phase 1   2015-2019

THE UNIVERSITY
OF QUEENSLAND
AUSTRALIA

BPAT objectives

- Independent review of CG and NARES plant breeding programs

  - apply private sector perspectives

    - better return on investments

    - focus on continual improvement

    - clear targets

    - understanding customers and market

- Assessment to drive improvements in genetic gain

- Assessment outcomes provided to Institutions and EiB to develop and implement Program Improvement Plans (PIP)

- Refine and improve BPAT tool

BPAT questions (155) – eleven components

Breeding Program Components

1. Breeding Objectives and Product Profiles
2. Breeding Organization
3. Infrastructure
4. Breeding Methodology
5. Product development and release
6. Program impact
7. Innovation
8. Engagement with NARES

Enabling Components

9. Alignment
10. Budget & finance
11. Organizational Effectiveness

BPAT

EiB and BPAT have a shared vision

	EiB Theme	EiB Vision (Outcome)	Issues	BPAT component
a.	Defining breeding targets and objectives	All breeding is oriented to development of products for maximum impact	rate of genetic gain, products that will be adopted by growers, understanding of for whom and what you're breeding, high quality product profiles, distinct germplasm pools and breeding schemes	C1, C4
b.	Strategy for breeding scheme	Breeding scheme is optimized for rate of genetic gain and likelihood of developing products for impact	variety development, parent development, identification and validation of novel genetic diversity, short breeding cycle, stage gate system,	C2, C4
c.	Strategy for breeding operations	Breeding strategy is executed is such a way as to optimize data accuracy, cost and throughput	technology, data collection, good data management, quality control, parent and product selections, breeding program costs,	C2, C3, C4
d.	Crossing	Best parental selection decisions are made and genetic diversity managed according to the breeding strategy	elite by elite, genetic diversity is measured	C4
e.	Evaluation	Germplasm is tested in a way to maximize accuracy	genetic diversity is measured, trial designs, reliable data, phenotyping technologies	C4
f.	Selection	Parents and products are selected on the basis of accurate data and aligned with the product profile	annual advancement meeting, accurate selection index, trial analyses, visualization tools, selection intensity and genetic diversity	C1, C4, C7
g.	Product verification, release and delivery	There is a pipeline and process for maximum impact of breeding program outputs	effective pipeline, sufficient data is generated and available	C5, C6
h.	Collaboration and culture	There is a culture that allows for improvement, sustainability and synergy	external trialling and germplasm, breeding teams are the experts, culture of continuous improvement, deploy new and successful breeding methods, annual review, respect and safety	C2, C7, C8, C9, C10, C11

BPAT questions (155) – eleven components

NEW Component – Organizational Effectiveness
Vanda Morgan

50 BPATs completed to date

CGIAR/NARES	Number	Crops
ICRISAT	15	pigeon pea, sorghum, chickpea, groundnut, pearl millet, finger millet
CIMMYT	5	bread wheat, tropical/sub tropical maize
IITA	11	Mchare banana, Matoke banana, plantain, maize, yam, cowpea, soybean, cassava (4)
AfricaRice	2	irrigated lowlands, Rainfed lowlands
IRRI	3	marginal environments, favourable environments, hybrids
CIAT	4	rice, cassava, common bean, Brachiaria forages
CIP	2	potato, sweet potato
NARO	1	Uganda Matoke banana
EIAR	7	chickpea, bread wheat, durum wheat, bean, sorghum, maize (2)

BPAT team for CIMMYT review -135y+

Dr Yilma Kebede USA – 40 y; Pioneer, BMGF

Prof Mark Cooper USA – 30 y; Pioneer, UQ
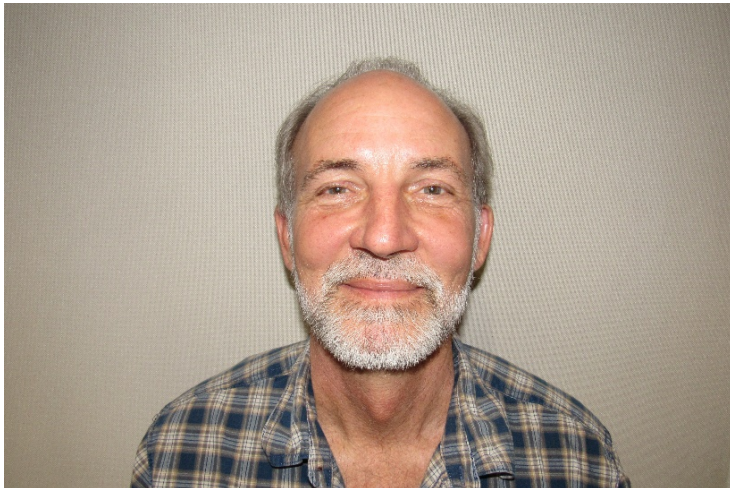
Dr Randy Holley USA – 30 y, Syngenta, Pioneer

Dr Christopher Lambrides – 35 y, Pioneer, CSIRO, UQ

2015

- Single EXCEL Spreadsheets for
- BPAT Assessor form
- Pre-visit surveys
- Assessor registration

2016

- EXCEL files with Macros and VBA programming
- Website development
- Social media setup

2017/8

- Forms in MSAccess
- Reports issued in PDF
- Website
    - Download Tools
    - Assessor Registration

2019

- Modifications to BPAT form and previsit surveys
- Analysis of BPAT outcomes - Power BI

Sandra Micallef – BPAT Data Manager

BPAT tools

BPAT what's next

- BPAT phase 2 – 2020+

    - 50 NARES + CG programs

    - Return visits after 3 years

- BPAT workshop in Seattle Jan 2020

    - Frame new questions for the re-assessments

    - EiB

Thank you and any questions?