A strategy for defining research priorities: survey results for Cassava/Sweetpotato

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Overview

• A strategic assessment of research priorities for RTB
• Framework: Six stage process
• Scoring: Expert survey GCP21-II Kampala, Uganda, 18-22 June 2012; Sweet Potato survey in Kenya, Sep 11-14
• Characteristics of respondents
• Constraints and trends
• Research options prioritized
• Principal component analysis results
• Implications: next steps
Strategic assessment of research priorities for RTB

- Resources for CRP-RTB limited

- How best invest resources to achieve food security & income (& SLOs):

  - Geography x Constraints x Crops x Research Options = Research activities

  - e.g. $8 \times 10 \times 6 \times 90 = 43,200$ => overwhelming

- Systematic procedure for organizing information => set priorities
Framework: Six stage process

1. Background analysis
2. Constraints analysis
3. Analysis of research options
4. Estimate impacts
5. Local level studies
6. Communication
Scoring: Expert survey GCP21-II

- Scoring: Rank alternatives
- Expert survey GCP21-II Kampala, Uganda, 18-22 June 2012
- Questionnaire survey
- Open-ended questions: Constraints & trends: Rank tallying of frequencies of responses
- Rating: 89 Research options: Each alternative numerical score of importance/mean score priority
- Implications: next steps
Characteristics of respondents
Constraints and trends
Research options prioritized: top 10

- Cassava brown streak disease
- Cassava mosaic disease
- Improving shelf life of cassava roots
- Cassava brown streak disease
- Cassava mosaic disease
- White flies
- Phenotypic/molecular screening of landraces in...
- Improving technologies for farmer based production...
- Tolerance to post-harvest physiological deterioration
Research options prioritized: bottom 10
Principal Components Analysis: Results

6: Fast disease, breeding, value chain
5: Slow pest and disease, breeding for consumer, value chains/policy
4: Pest, agronomy, disease
3: Genetic resource/pest
2: New uses, biotic and abiotic
1: Planting materials, policy/impact
Preliminary Results from a Sweet Potato survey:

Based on 52 completed surveys, September 2012

Frequency of responses for each research option
A.1. Breeding for crop improvement

1. Breeding for high yield
2. Breeding for high dry matter
3. Breeding for processing quality
4. Breeding for low sugar content (non-sweet)
5. Breeding for dual purpose use
6. Breeding for vegetable types
7. Breeding for forage use
8. Breeding for root form/shape
9. Nutrient use efficiency
10. Other (specify below)

Legend:
1 = not important
2 = low importance
3 = important
4 = very important
5 = most important
don’t know
A.2. Breeding for improvements in nutritional quality

11. Pro-Vitamin A (beta-carotene)
12. Iron
13. Zinc
14. Retention of micronutrients during processing and storage
15. Anthocyanins (purple-fleshed)/antioxidants
16. Other (specify below)

Legend:
1 = not important
2 = low importance
3 = important
4 = very important
5 = most important

Don't know
A.3. Breeding for biotic stress resistance

17. Sweet Potato Virus Disease (SPVD)
18. Sweetpotato fungal diseases and root rots
19. Sweetpotato anthracnose
20. Sweetpotato nematodes
21. Sweetpotato weevil
22. Whiteflies and aphids
23. Moles and rats
24. Other biotic stresses of sweetpotato (specify below)

Legend:
- 1 = not important
- 2 = low importance
- 3 = important
- 4 = very important
- 5 = most important
- don’t know
A.4. Breeding for abiotic stress resistance

25. Drought tolerance / water use efficiency
26. Cold tolerance / highland hardness
27. Heat tolerance
28. Waterlogging
29. Marginal soils tolerance
30. Soil salinity tolerance
31. Other abiotic stresses of sweetpotato (specify below)

Legend:
- 1 = not important
- 2 = low importance
- 3 = important
- 4 = very important
- 5 = most important
- don't know
E. Pest control and management, incl. resistant varieties

1. White flies & aphids
2. Sweetpotato weevils (Cylas formicarius, C. brunneus, C. puncticolis)
3. Nematodes
4. Weeds
5. Others (specify below)
Implication of results and next steps

- CRP-RTB needs guidance to focus efforts on most promising options for research: geography, crops, research problems, research options

- Survey of cassava experts GCP21-II, 18 - 22 June 2012

- Priorities:
  (a) Disease management, breeding, value chains
  (b) Pest and disease management, bio-fortified cassava varieties, breeding for other consumer preferred traits, value chains, policy
  (c) Agronomy, pest and disease management, value chains, breeding
  (d) Production technology, genetic resource management, pest management
  (e) Biotic and abiotic, nutritional quality/new uses, value chains
  (f) Planting materials, crop management, policy/impact studies

- More surveys, assessment of input-output functions and costs and benefits for alternative research options