ICT-enabled Agricultural Science for Development
Scenarios, Opportunities, Issues
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ICTs transforming agricultural science, research & technology generation
Science Forum Workshop Theme 3
Scenario’s

• Sensor technologies
  – Sensor network based field monitoring
  – New sensors
  – Mobile phones and IC tags

• Technologies to integrate and utilize distributed resources
  – Data Grid to virtually integrate distributed databases
  – Computational Grid to virtually realized super-computer
  – Mash-up to integrate services to create a new service
  – Multilingual semantics

• Computational statistics and soft computing
  – Hyper multidimensional data
  – Non-linear models
  – Pattern recognition
Opportunities

• **Stable and continuous farm (field) data acquisition**
  – Decision support for site-specifically most optimal farming
  – Decision support by Case Base Reasoning (CBR)
  – Basis for GAP and food safety

• **Resource integration and sharing**
  – Globally usable and locally useful applications
  – Virtual corporation of small scale farmers

• **New types of data modeling**
  – ICT based innovative breeding
    • Whole genomic selection based on computational statistics, high-throughput sequencing, genetic resource databases
  – Widely applicable robust biological models
    • Growth model, pest prediction model, etc

From maximization to optimization by ICT
Issues

• Data exchange and sharing
  – Interoperability and standardization for seamless data exchange and sharing
  – Mash-up
  – Ownership

• System to realize Interdisciplinary collaboration

• Field data collection
  – How to convince farmers to collect and accumulate field data continuously
  – P&P sensing and data archive

• Language
  – International information sharing
  – Literacy
More Information

- AFITA (Asian Federation of Information Technology in Agriculture)
  - [http://afita.ac.affrc.go.jp/](http://afita.ac.affrc.go.jp/)

- APAN (Asia Pacific Advanced Network)
  - [http://apan.net](http://apan.net)

- Field Server
  - [http://model.job.affrc.go.jp/FieldServer/](http://model.job.affrc.go.jp/FieldServer/)

- MetBroker:
  - [http://www.agmodel.org/](http://www.agmodel.org/)

- Speaker contact email address
  - snino@affrc.go.jp
  - [http://zoushoku.narc.affrc.go.jp/ADR/index-e.html](http://zoushoku.narc.affrc.go.jp/ADR/index-e.html)