The importance of public-private collaboration to enhance application of biotechnology in plant breeding

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Public Private Partnership (PPP)

PPPs are a ‘long’ term collaboration between public sector (government) and the private businesses, where both parties share duties and responsibilities, and funds, to solve a common issue of interest...

https://www.slideshare.net/mohanrajhorti/publicprivate-partnerships-198739700
https://farmingfirst.org/2012/02/public-private-partnerships-a-vital-mechanism-for-advancing-agricultural-innovation/
Public Private Partnership for plant breeding

✓ Plant breeding is one of the most sustainable way to improve food security and future challenges.
✓ Plant breeding is multidisciplinary and long-term operation/investment.
✓ Many challenges: genome complexity, multi-trait, G x E.
✓ Plant breeders always seek for methods that can increase their selection efficiency and accuracy at low cost.
Enable HTP technologies

✓ Costly
✓ Require different competences
✓ PPPs are one way in which expertise from different fields can be combined to reach breeding innovative solutions

Public Private Partnership for plant breeding
Nordic PPP for pre-breeding

Nordic Council of Ministers

NordGen

50/50

Private

Public
Nordic PPP for pre-breeding

- Strengthen plant breeding in the Nordic countries
- Promote sustainable use of genetic resources in the Nordic region
- Introduction of new traits in commercial breeding
- Development of efficient tools and methods
- Networking (pre-competitive collaboration)
Nordic pre-breeding PPP: 4 phases 2012 – 2023...

- **PPP_Barley**: 2012-2020
- **PPP_Ryegrass**: 2012-2020
- **PPP_Apple**: 2012-2021
- **PPP_Strawberry**: 2018-2020
- **PPP_Wheat**: 2021-2023...
- **PPP_Potato**: 2021-2023...
- **PPP_Phenomics**: 2015-2023...

- Obtained knowledge and competence
- Strong network
- Developed breeding methods and tools; e.g., MAS, GS, phenomic....
- New breeding material; e.g., MAGIC
Navigating Climate Risk
Breeding, environment and market
Develop solutions for managing climate risk on time horizons from 10 days to 10 years (and more) into the future.
Climate Future: Breeding goals

- Short, medium and long-term climate prediction

- Prediction of variety performance (+offspring) in different environments (short-medium-long terms) – based on current and historical information.

- Identify current locations that represent future medium- and long-term climate

- Potential new crops for Nordic market
Some remarks

• PPPs can effectively bridge the gap between public and private sectors’ competencies.

• Particularly important for plant breeding to stimulate development through innovation or/and translating research into useful and relevant tools.

• Leverage access to knowledge and technologies

• Can reduce development cost and increase efficiency
Thank you!