

Cryopreservation in Norway

NORWEGIAN INSTITUTE OF BIOECONOMY RESEARCH

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Background

Germplasm conservation has an important role to play in the maintenance of biodiversity and in avoidance of genetic erosion. Cryopreservation is considered an ideal means of the long-term conservation of plant genetic resources. The safeguarding of pathogen-free collections is an important aspect of cryopreservation. In Norway, we have been working with cryopreservation of vegetative propagated crops since 2010. We have been focusing on cryopreservation of *Argyranthemum*, strawberry, potato, begonia, raspberry, blackberry and shallot onions.

Overview of Cryopreservation bank in Norway (Sagaplant)

Plants	Total number of cryopreserved tubes	Number of cryopreserved tubes each year			
		2017	2016	2015	2014
Strawberry	416	136	166	0	250
Raspberry	42	42			
Ribes	6	6			
Potato	573	288	272	120	
Lilac	2	2			
Total number of tubes*	1037	474	438	120	250

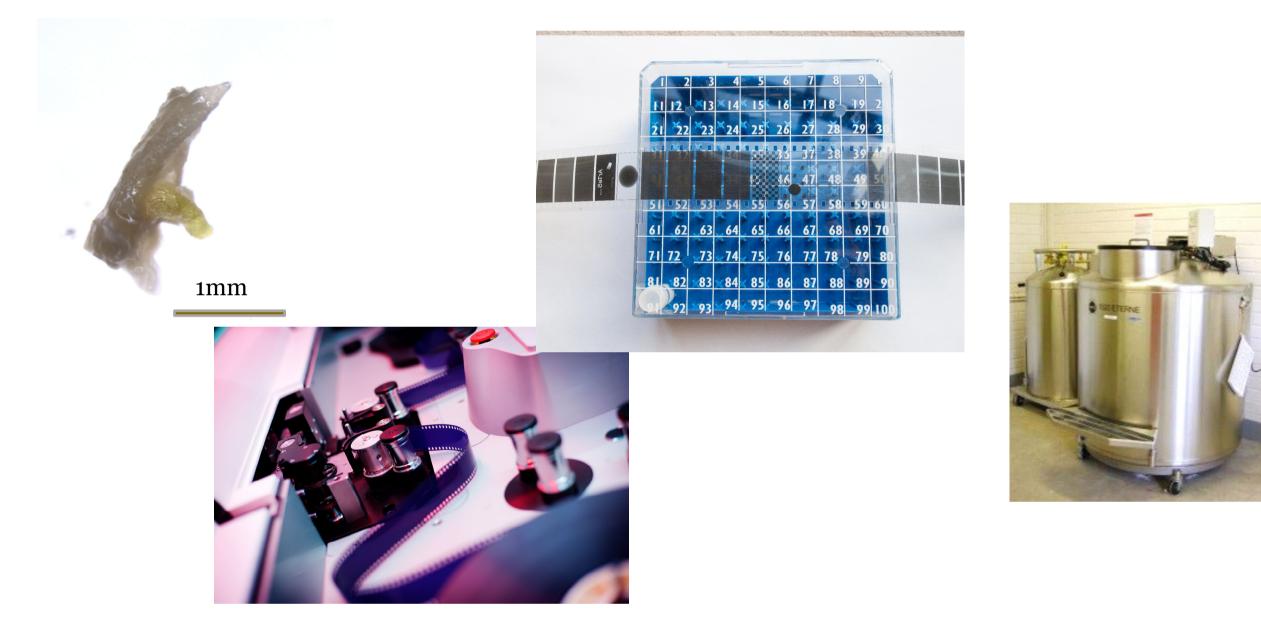


Norwegian projects related to cryopreservation

Project Name	Period	Plant	Торіс
KryoFrisk	2011-2013	Strawberry and Argyranthemum	Establish cryopreservation method and elimination viroid
KryoVir	2014-2017	Potato	Cryopreservation, virus diagnosis, test proccess, database
KryoLang	2014-2016	Potato, Strawberry and Argyranthemum	Co-cryopreservation of plant germplasm and their related digital data and visual information
Rub&Al	2016-2019	Raspberry, blackberry and shallot onion	Virus diagnosis and cryopreservation
KryoBeg	2016-2020	Begonia	Endophytes and cryopreservation
FutureFood	2016-2017	-	Design cryobox for co-cryopreservation of plant germplasm and their related digital data and visual information

*Each tube contains 10 shoot tips

Development of technology, methods and equipment for cocryopreservation of plant germplasm and their related digital data and visual information



Establishment of next generation sequencing for plant virus diagnosis.



- Collaboration between research institutions, universities, the industry and growers
- Establishment of cryopreservation methods for Argyranthemum, strawberry, potato, begonia, raspberry and shallot onions
- Cryopreservation of 60 potato cultivars, 26 strawberry cultivars, 3 raspberry cultivars and other plant species
- Field performance testing ofcryopreserved strawberry, potato and Argyranthemum and begonia

 Virus elimination from potato, raspberry and shallot onion.
Viroid elimination from Argyranthemum. Virus/viroid distribution study



Localization of CSVd infected in Argyranthemum with in situ hybridization



Goals

Together with relevant companies and international partners we want to investigate the concept 'Svalbard Green Vault', for cryopreservation of vegetative propagated germplasm resources in Norway.

Acknowledgement

The financial support of The Norwegian Research Coucil, NIBIO, The Norwegian Genetic Resource centre, and private companies are higly appreciated.

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