



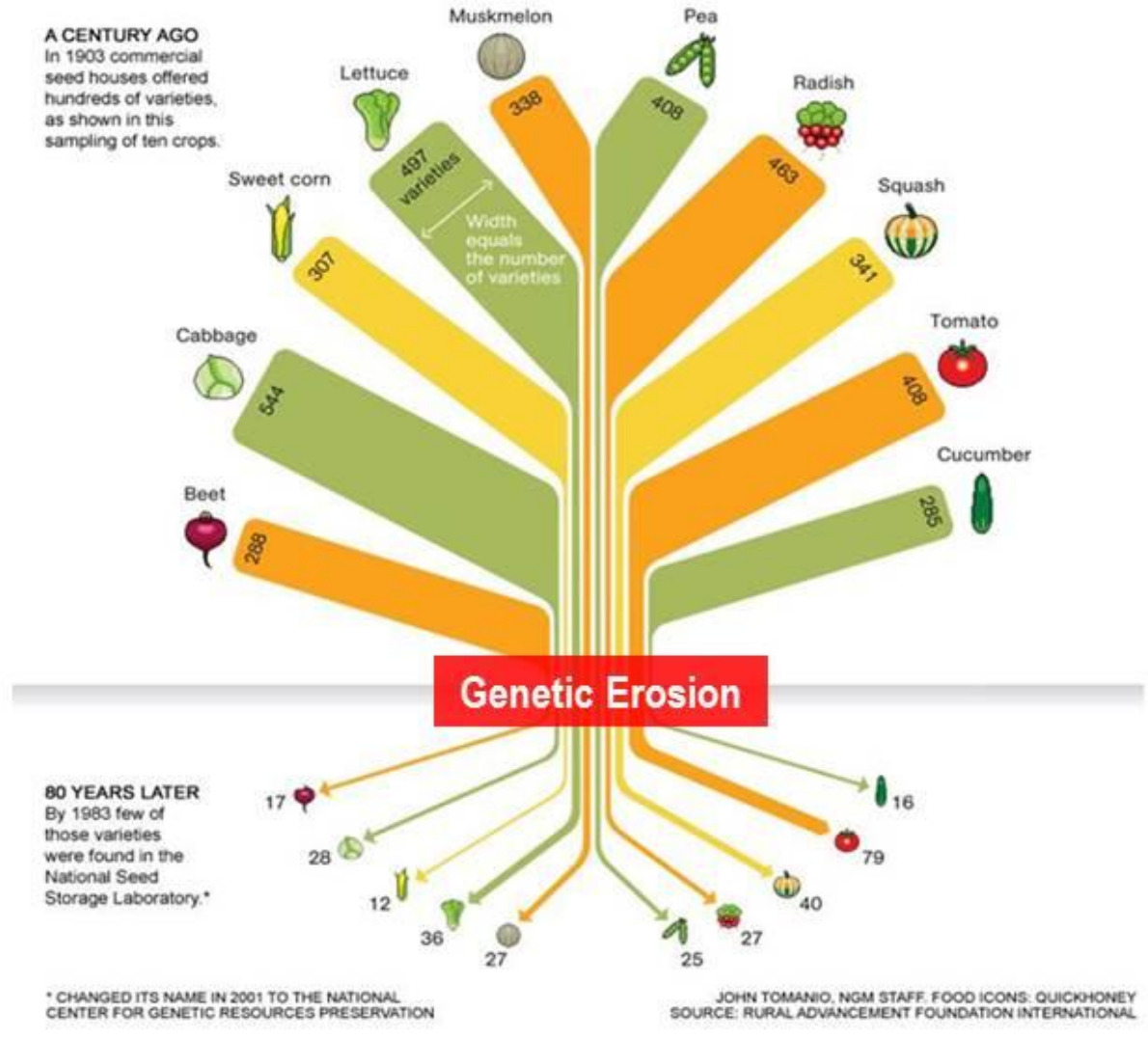
Towards a Nordic User Gene Bank?
Annette Hägnefelt
Jan T. Svensson

AGROBIODIVERSITY

- Since the 1900s, ~75 percent of plant genetic diversity has been lost as farmers worldwide have left their multiple local varieties and landraces for genetically uniform, high-yielding varieties.
- Today only 150 to 200 edible plants species are used by humans. Historically ~7000 species of plants have been cultivated for consumption in human history
- 95% of the world's food is generated from only 30 plants
- Four plants - rice, maize, wheat and potato - contribute nearly 60 percent of calories and proteins obtained by humans from plants.

Loss of genetic & cultural diversity

National Geographic 2011
Study conducted in 1983 by the Rural Advancement Foundation International gave a clue to the scope of the problem. It compared USDA listings of seed varieties sold by commercial US seed houses in **1903** with those in the US National Seed Storage Laboratory in **1983**. **The survey, which included 66 crops, found that about 93% of varieties had gone extinct.**



Conservation of genetic diversity in seed genebanks

A major goal is to preserve natural patterns of genetic diversity to the extent possible to preserve options for future "evolutionary" change

Active use of genebank material is conservation

Note: not everything can be preserved in a gene bank!!



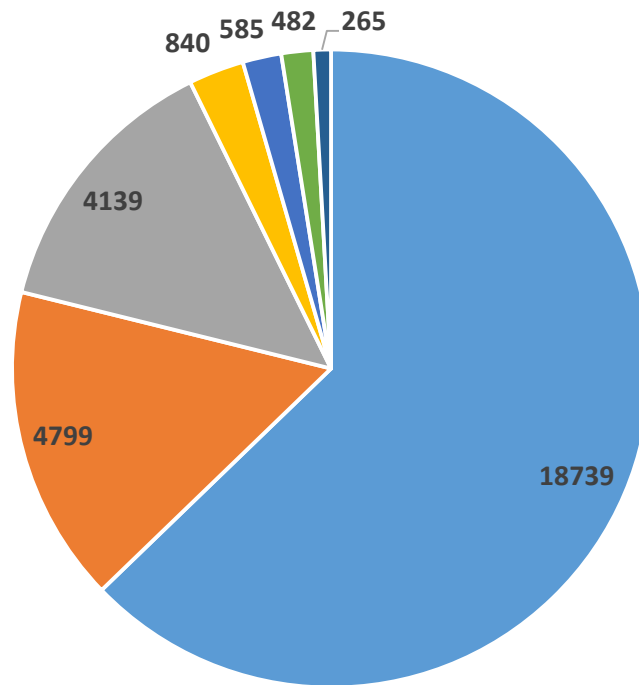


Nordic seed collection

Nordic Seed Collection

- The collection includes 513 species and varieties of cultivated crops and their wild relatives, with 35,700 registered accessions (20,000 unregistered)
- The Gene Bank is working with material of Nordic origin and/or relevance

29.000 ACC/PEN
6.700 TEM
+ INCOMING



- Cereals
- Forage
- Vegetables
- Fruit and berries
- Medicinal plants
- Root crops, oil plants and pulses
- Ornamentals

Cereal collection

Regeneration 2015 and 2016

-> 3000 accessions

-> € 700.000

Cost to recreate the cereal collection

Estimated at > €5 million

User gene bank(s)

Regulatory framework

Conservation and traditional varieties listed



EU Directives

Directive 2008/62/EC

- agricultural landraces and varieties naturally adapted to local conditions ...
- no limits regarding package size

Bevarings-sort (DK)

Alkuperäiskasvilajikkeet (FI)

Bevaringsverdige sorter (NO)

Bevarandesorter (SE)

Conservation varieties (EN)

Directive 2009/145/EC

- vegetable landraces and varieties traditionally grown in certain regions...
- only small package

Amatørsorter (DK)

n/a (FI)

Tradisjonsorter (NO)

Amatørsorter (SE)

Others (EN)

Nordic Conservation varieties

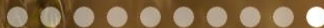
	DK	FI	IS	NO	SE
Wheat	1			4	14
Oat		1			5
Barley		2		1	7
Rye		9		1	
Potato				3	14
Pea					16
clover		8			
Swede		2			1
Buckwheat		1			
Soy bean					1
French bean					1
Broad bean					

Oat drink from Sol II

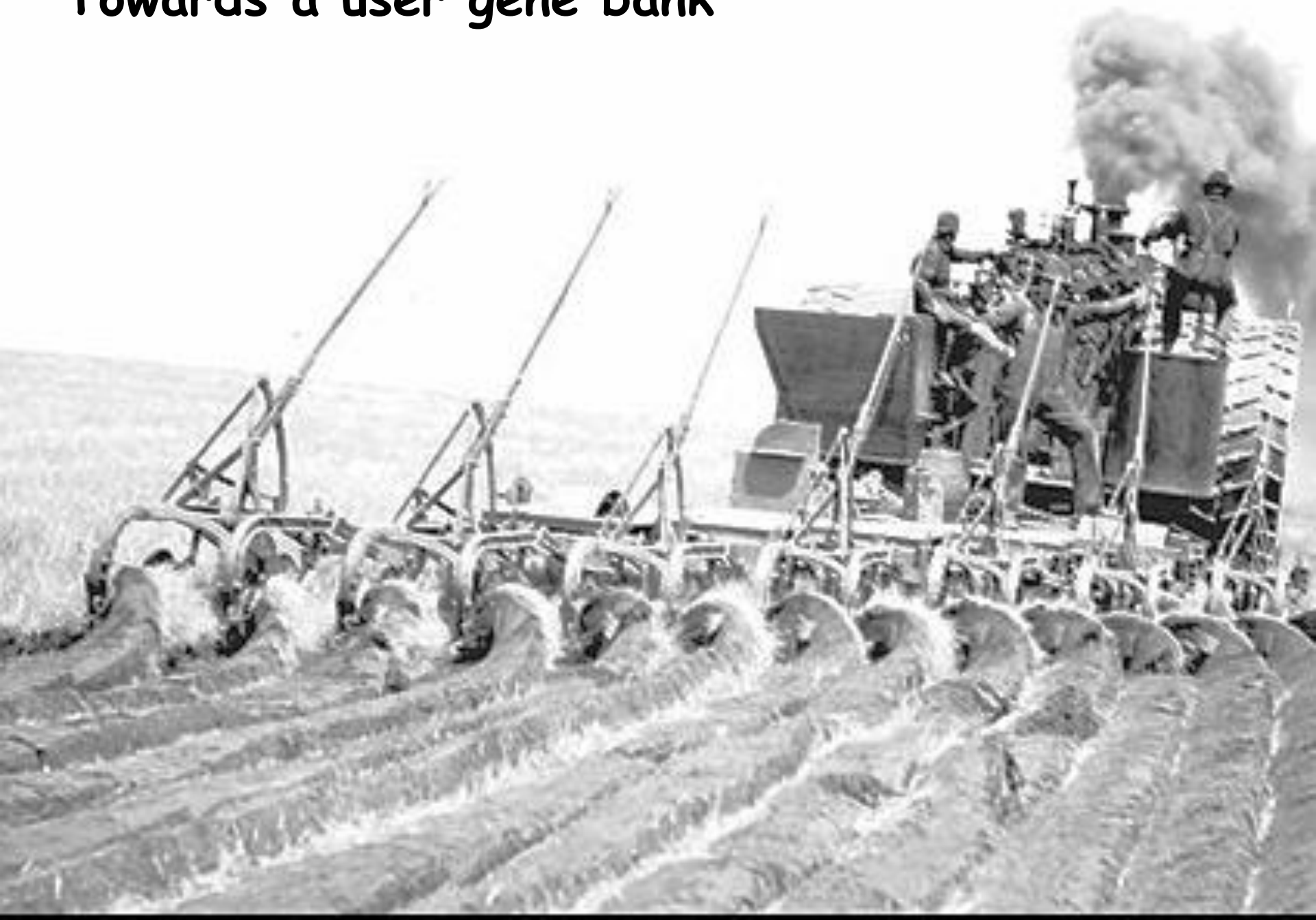
THE ORIGINAL
OATLY!



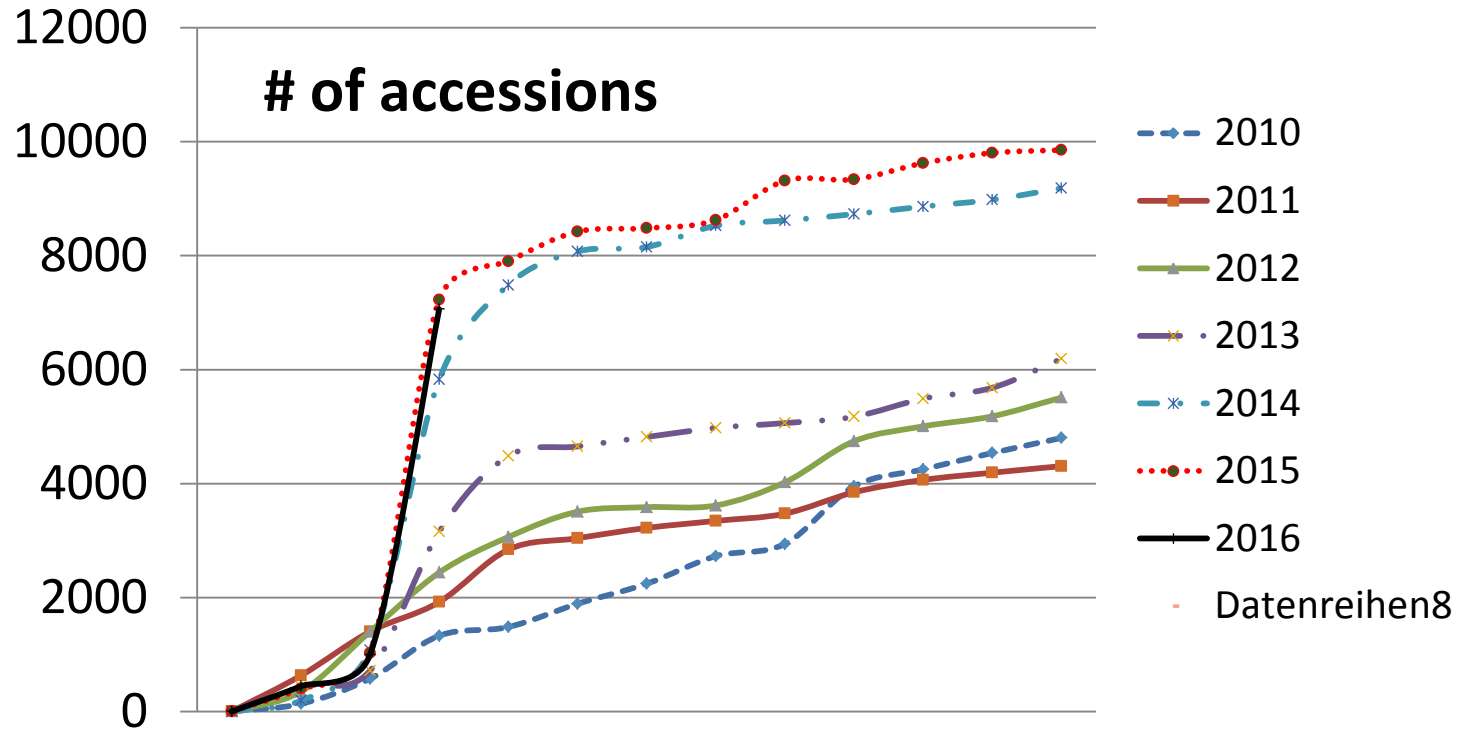
Sol II kom till fabriken i Landskrona där den maldes, behandlades och förpackades (plus några andra små moment däremellan, men det tar vi på en annan site). Gammaldags hafvredryck gjord på Sol II är ett faktum. Förhoppningsvis landar den så småningom i ditt kylskåp, på ditt köksbord, i din mage. Men 8,4 hektar odlad Sol II betyder förstås att det inte finns oändliga mängder Gammaldags hafvredryck att tillgå. Så Skynda och fynda!



Towards a user gene bank



Seed requests 2010 - 2016



Group work on agrobiodiversity in legislation

16.00 - 17.00 User Genebank - interaction with end users

-give your views on a user genebank(s)



Towards a "user genebank"

- 1) define end-users (hobby, SMB)
- 2) driven by end-users with support from NordGen
 - organization?
 - role of NordGen?
 - National or Nordic?
- 3) create a trademark "grönt kulturarv"
- 4) legislation
- 5) funding



Towards a "user genebank"

Annual surplus of seeds

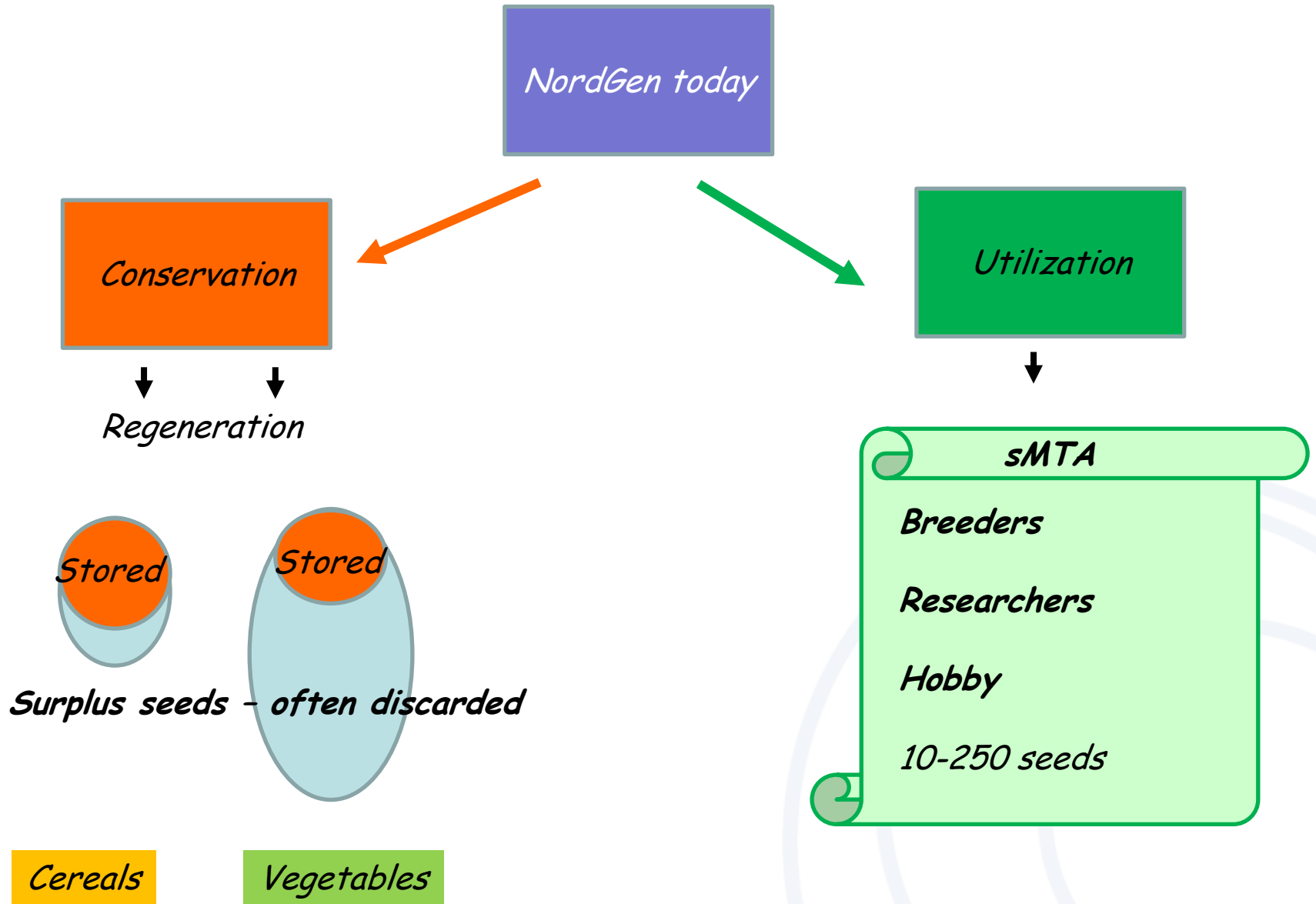
- 1) suitable for hobby growers
- 2) included in NordGen's hobby collection

NordGen as an active partner

- 1) End-users and NordGen defines accessions of interest for use in Nordic countries
- 2) NordGen "assists" with 1st regeneration (cereals)

National hubs ("user gene banks")

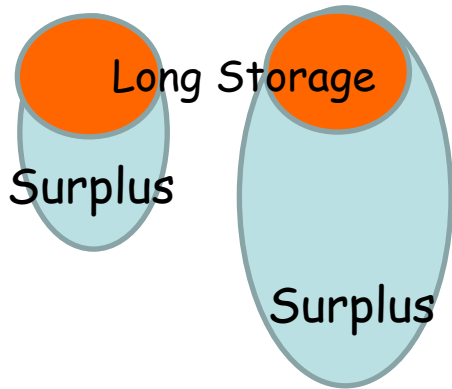
- 1) Driven by end users in Nordic countries
- 2) NordGen assists in selection of material



NordGen distributes surplus seeds to hobby

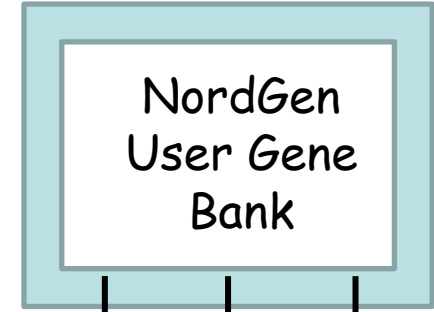


↓ ↓
Regen & Multipl

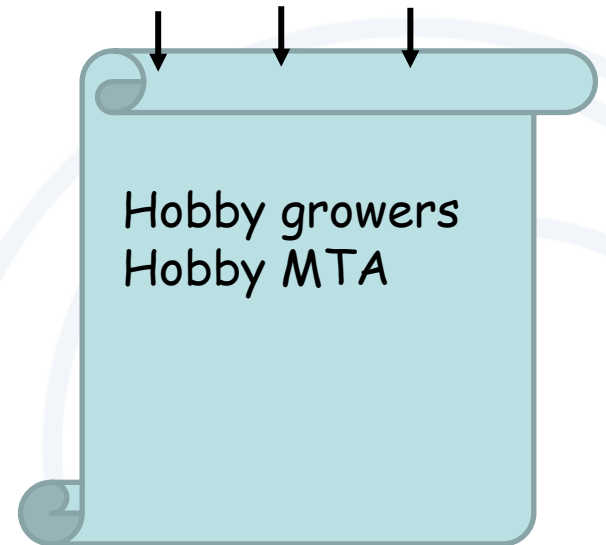


Cereals

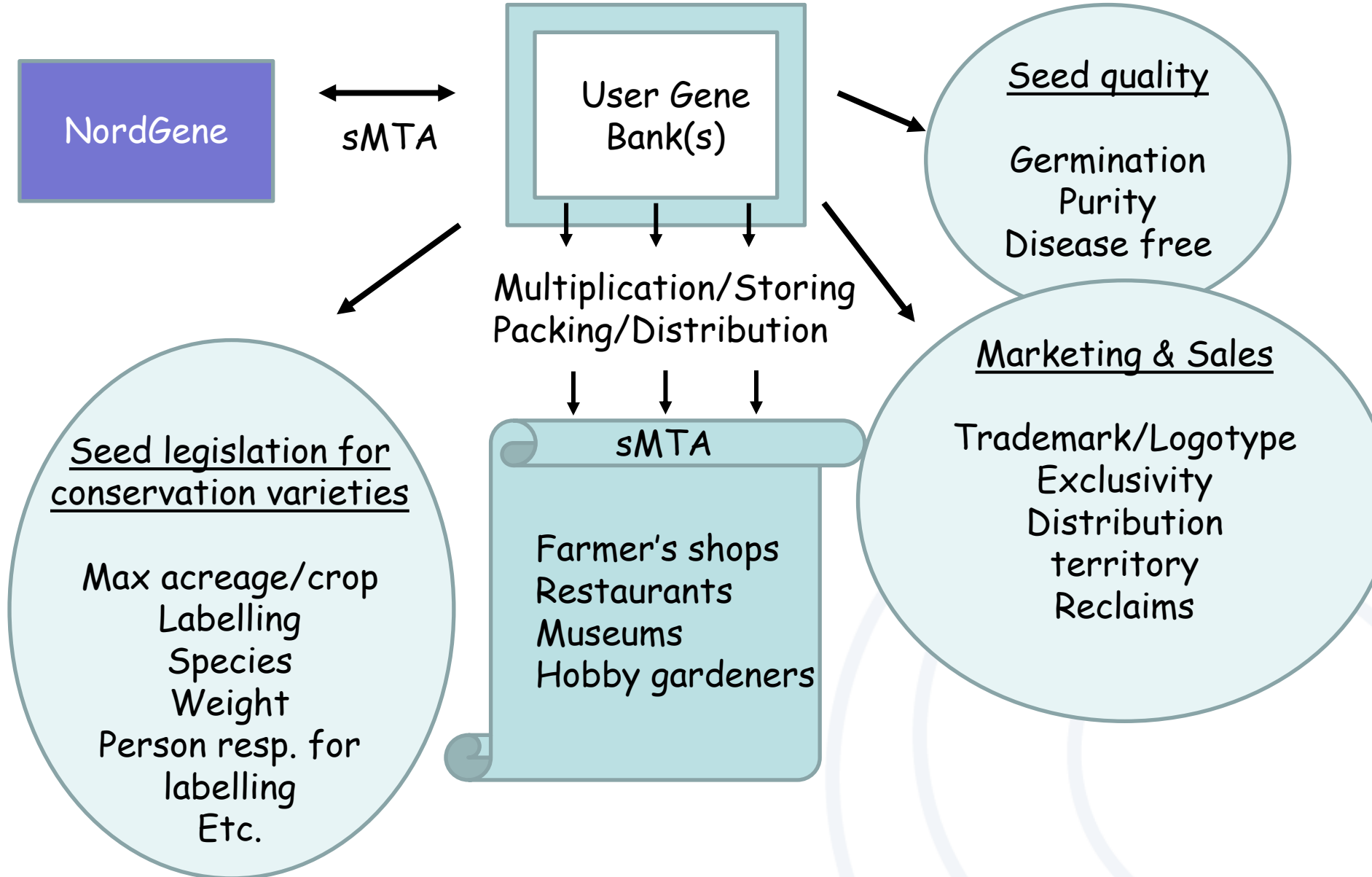
Vegetables



↓ ↓ ↓
Storing/Packing/Distribution



NordGen as an active partner



Group work on agrobiodiversity in legislation

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-give your view(s) on user genebank(s)



Thank you for your attention!

