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Narrative and financial report

For Arche Noah

Training title: 8-days practical course: plant breeding in farmers' hands

1. About the training

The *8-days practical course: plant breeding in farmers' hands* took place in the Netherlands and Belgium between 15 February 2020 and 13 March 2021. [Annex 1](#) provides a complete overview of the dates and places of the course as well as the name of trainer and guest speakers. 12 participants joined the (majority of the) training days. See [annex 2](#) for a complete list of participants and their presence during these 8 days.

The training focused on plant breeding and seed propagation techniques for the target groups farmers and gardeners. At the end of the training, we expected the course participants to be able to:

1. determine which breeding method (s) they want to apply based on purpose and crop
2. use basic tools for seed multiplication and maintenance of varieties
3. have broadened their perspective on organic breeding

About the organisers

Stichting Zaadgoed organised the course. It is a Netherlands based foundation focused on boosting organic plant breeding, seed production and the conservation of agrobiodiversity. Zaadgoed ('good seed') is a nonprofit civil society organisation that supports farmer and community based plant breeding and the conservation of traditional varieties for a gm-free, organic agriculture. The Board of Stichting Zaadgoed consists of Cor Zenhorst (organic farmer), chair, Edwin Nuijten (Plant breeder at The Beersche Hoeve), treasurer, Tineke Alberts (biodynamic breeder at Buitenbant) and Willy Douma (freelance facilitator change processes in food and seed systems).

The course content was developed by Edwin Nuijten en Willy Douma building on new insights on organic breeding, an earlier course in the Netherlands (2012) and courses developed in Germany by Kultursaat.

2. Details of the training programme – a report in pictures

Day 1 and 2: Training at the farm Beersche Hoeve, Oostelbeers, the Netherlands. Days 1 and 2 were combined in one weekend. On day 1, we started off with an overview of the current state of affairs in organic breeding. We practiced selection with leek. In the evening a film was shown with practical details on seed multiplication. On day 2 a checklist was provided for the participants to work with for their own breeding and/ or multiplication. Participants set up their own breeding and/or multiplication project (so-called case study). One month later, these case studies were discussed on-line in small groups.



Day 3: We visited the farm of Greet Lambrechts in Schriek, Belgium. She is a breeder and coordinator of the Network Zelf Zaden Telen (grow your own seeds) and founder of the cooperative Vitale Rassen. The theory part focused on the genetic basis of various breeding methods. We practiced official descriptions of varieties with lettuce and green beans and ended the day with one of the course participants showing her breeding project.



Day 4: The training took place again at the farm the Beersche Hoeve. Focus of the day: genetics, disease resistance and tolerance. After the theory in the morning and small-group work on how to use this theory in the case studies, in the afternoon we visited the fields to discuss various trial set-ups, followed by practical selection in beet root.



Day 5 and 6: These two days were also combined in one weekend. Focus of day 5 was the concept of growth and differentiation. After the explanation of the concept, the participants analyzed the growth and differentiation of various beetroot varieties. This was followed by a field tour to show the different types of growth between plants of various crops. In the evening a film on the importance of seed diversity was shown. The focus of day 6 was nutritional quality and taste. Theory was followed by small group-work to discuss how the knowledge of day 5 and day 6 can be used in the case studies. In the afternoon participants learned how to prepare taste test and how to taste pumpkin and beetroot in a systematic way.



Day 7: Due to the covid pandemic day 7 took place online. With guest speaker Prof Edith Lammerts van Bueren (Organic Plant Breeding, Wageningen University) we explored the bigger picture of organic breeding and in particular its place in organic food systems: For what, why and how. Mr Theo Boon (director Odin) provided an insight in why a cooperative retailer is interested and how it provides support for breeding.

Day 8: Also online due to covid: An overview was provided on important aspects of seed harvesting, cleaning, drying and storage. Cooperative De Zaderij provided insights in what they do and how farmer breeders are able to enter the market with help of De Zaderij.

3. Summary of lessons learned

In general, the participants were very positive about the course, the trainer and support staff, its general practical character and helpful insights. Several of the participants indicated how they have integrated the lessons learned in their daily practices. We will use the detailed feedback that we received on each of the course days as well as at the end of the course.

Covid – of course – influenced some parts of the course. For instance, we were not able to do seed cleaning at the Cooperative De Zaderij which for some participants was a big disappointment. We promised to organize a return day in September to De Zaderij.

Most participants showed interest in becoming part of the larger network of Stichting Zaadgoed. We generally organize yearly study days for all farmers and gardeners in our network. This will provide an opportunity for continued learning and exchange among fellow breeders.

We will repeat this course in 2022. Much to our surprise we have already received several applications. The new course will heavily build on this course and make good use of all the time that has been spent on preparing the course days. We expect to follow a similar program as we did in 2020, with improvements based on the feedback per day and in general.

4. Financial report

Available upon request

Thank you

We are grateful for the support of the Community Seed Banks Academy of Arche Noah which not just provided us with a grant but also gave us the trust and courage to organize the course.



Annex 1 Programme Zaadgoed '8 days practical course: plant breeding in farmers' own hands'

#	Date	Main topic	subtopics	practice/skills	trainer and location
1 and 2	15 and 16 February 2020	Current state of affairs organic breeding	basic classification breeding techniques: process of breeding, crossing, selection, variety developing	how to select; how to describe	Edwin Nuijten at De Beersche Hoeve Oostelbeers (NL)
			basic classification selection techniques: negative selection, positive selection		
		Propagation	Calculations: How many plants do I need?	Exercises using onion and cabbage	
		Set up breeding project	annual plan	building your own case	
			field set up		
			choices: determine starting material; whether or not to cross; #plants, # repetitions; Properties		
online	March	Case studies		Tips on how the improve the case studies	Discussions in small groups on-line
3	4 July 2020	Breeding methods	Genetics and population breeding: effects of negative and positive selection	theory and field visits	Greet Lambrechts at Akelei, Schriek, (BE)
		Official variety descriptions	How to describe lettuce and green beans	exercise in the fields of Akelei	
4	22-aug-20	disease resistance and tolerance	Theory and practice		Edwin Nuijten at De Beersche Hoeve, Oostelbeers (NL)
			connection between illnesses and yield		
		Genetics, and variety descriptions	history a.o Mendel		
			Alternatives developed in organic breeding		
			registration procedures and official variety descriptions	variety descriptions in beans and lettuce	
5 and 6	26 and 27 September 2020	Growth and differentiation	Growth patterns (phenology)of plants	Selection and description	Edwin Nuijten and René Groenen at De Beersche Hoeve, Oostelbeers (NL)
			selection based on quality, yield, storage, taste	perform brix measurement	
		Taste and quality	Balance in quantity and quality: tradeoffs,	taste trial with pumpkin and	

			experiences 'divers en dichtbij' programme; comparison of open pollinated and F1 hybrid varieties	beetroot	
7	13 February 2021	The bigger picture	Organic breeding from a systems-based perspective	with Prof Edith Lammers van Bueren and Theo Boon (Odin retailer)	online (edwin Nuijten and guest speakers)
			describing the importance of closing the gap between breeding and society		
			From linear value chain towards food system thinking		
			finalizing individual cases		
8	13 March 2021	After harvesting the seeds: drying, cleaning, storage and organizing sales	Overview of important aspects related to drying, cleaning and storage	De Zaderij Bant: with Tineke Alberts	online (Edwin Nuijten and guest speaker)
			How to organize sales using a cooperative model: building short chains with and for farmers		
			evaluation		

Annex 2 List of participants 2020-2021

	first name	family name	1	2	3	4	5	6	7	8	remarks
1	Dirk	Claessen	0	0	1	0	0	0	0	0	
2	Dirk	Hart	0	0	1	1	0	0	1	1	
3	Edith	Rotman	1	1	1	1	1	1	1	0	
4	Grietje	Raaphorst-Travaille	1	0	0	0	0	0	0	0	
5	Iris	Aerden	0	0	1	1	1	1	1	1	
6	Jan	Schuurmans	1	1	1	1	1	1	1	1	
7	Jelle	Meindertsma	1	1	1	0	0	0	0	0	
8	Karien	Van Rijst	1	1	0	0	0	0	0	0	
9	Leo	van der Vlugt	1	1	1	1	1	1	1	1	
10	Liesbeth	Reynders	1	1	1	1	1	1	0	1	
11	Marieke	Berkhout	1	1	1	1	1	1	1	1	
12	Mariette	Kamphuis	1	1	1	0	0	1	0	1	
13	Maxim	Pinto	1	1	0	0	0	0	0	0	
14	Pauline	Kleinhans	0	0	1	1	1	1	1	1	
15	Robert	Strikkers	1	1	1	1	1	1	0	1	
16	Senne	Martens	1	1	1	0	0	0	1	1	
17	Teun	Luijten	1	1	0	0	0	0	0	0	
18	Tineke	Bakker	1	1	0	0	0	0	0	0	
19	Verena	't Hooft	0	0	0	0	0	0	1	1	
20	Willem	't Hooft	0	0	0	0	1	1	1	0	
21	Greet	Lambrechts	0	0	1	0	0	0	0	0	organiser field visit Belgium
22	Edwin	Nuijten	1	1	1	1	1	1	1	1	trainer
23	Willy	Douma	1	1	1	1	1	1	1	1	organiser
24	Edith	Lammerts van Bueren	0	0	0	0	0	0	1	0	speaker
25	Tineke	Alberts	0	0	0	0	0	0	0	1	speaker
26	Theo	Boon	0	0	0	0	0	0	1	0	speaker
	TOTAL # of participants per day		16	15	16	11	11	12	14	14	including organisers and speakers
	Out of total participants the number of trainees per day		14	13	13	9	9	10	10	11	