

## Vegetable Seed Producer's Network: Competency List

This document is meant to be a self-evaluation tool for growers to help identify areas of proficiency, and skills that you should focus on developing, to grow high quality seeds at a scale that is suitable for your farm or for commercial production.

Rating	Knowledge Level	Experience Level
1	Limited knowledge of concept	No experience or application of concept
2	Basic understanding	1-2 years of experience
3	Intermediate level of understanding	3-5 years of experience
4	Advanced level of understanding	5-10 years of experience
5	Expert level of understanding	10 + years of experience

Sood Production and Cleaning		Knowledge						Experience						
See			2	3	4	5		1	2	3	4	5		
1.	Basic concepts of flower anatomy, flower types (i.e.													
	imperfect and perfect flowers), plant propagation													
	(e.g. sexual reproduction of plants), crop types (i.e.													
	annuals, biennials, perennials), pollination types													
	(i.e. self, insect, wind) and breeding habits (i.e.													
	inbreeding vs. outbreeding)													
2.	Basic principles of plant taxonomy (e.g. categorizing													
	families, genus, etc.), and how those principles													
	impact pollination, varietal purity, and crop													
	planning													
3.	Develop an effective crop plan for seed production													
	taking into account isolation distances and													
	population sizes according to best practices													
4.	Understanding planting times, flowering times, and													
	life cycles for both annual and biennial seed crops													
5.	Basic rogueing (removing off-types or bad plants)													
	and selection (selecting the best plants) practices													
	for different varieties at all points in the season													
	(e.g. seedling stage, before flowering, after													
	flowering, during harvest, etc.)													
6.	Identifying and implementing appropriate													
	pollination and isolation strategies mid-season (e.g.													
	hand-pollinating if necessary, removing row cover													
	when plants are flowering, etc.)													
7.	Implementing infrastructure requirements for													
	growing and harvesting seed crops (i.e. trellising,													
	mulching, windrowing, etc.)													
8.	Understanding basic theories of harvesting, drying,													
	threshing, and cleaning dry-seeded crops, and what													
	equipment to use at a small and medium scales													



9.	Understanding basic elements of harvesting,						
	processing, and cleaning wet-seeded crops, and						
	what equipment to use at a small and medium						
	scales						
10.	Knowing when to harvest and how to appropriately overwinter/store biennial seed crops in their first						
	year						

Sood Quality Assurance and Varietal Purity		Knowledge						Experience					
See	Seeu Quality Assurance and Varietal Purity		2	3	4	5		1	2	3	4	5	
1.	Recognizing, identifying, and determining effective in-field treatments for crop-specific pests and												
	pathogens												
2.	Defining varietal purity characteristics and ensuring that seeds are harvested from plants displaying those characteristics												
3.	Knowing how to store seeds properly for replanting the following season and for long-term storage												
4.	Recognizing, identifying, and determining effective treatments for any seed borne diseases												
5.	Understanding how to conduct standard germination tests for most types of vegetable seed												

On Form Variaty Trials and Dlant Broading		Knowledge						Experience					
Un	On-Farm Variety Trials and Plant Breeding		2	3	4	5		1	2	3	4	5	
1.	Knowledge of how to design and organize a variety												
	trial to appropriately evaluate the performance of												
	different varieties against check varieties												
2.	Difference between an observational trial and												
	replicated trials												
3.	Developing appropriate evaluation tools to help												
	observe, record, and interpret the correct data												
	from variety trials												
4.	Basic understanding of genes, alleles, and												
	segregation												
5.	Understanding of crop-specific breeding needs and												
	desirable traits to select for												
6.	Understanding of crop-specific dominant and												
	recessive traits												
7.	Knowing how to self-pollinate different types of												
	crops												
8.	Knowing how to intentionally cross pollinate												
	different types of crops												
9.	Understanding different types of resistance styles												
	(e.g. vertical/monogenic vs. horizontal/polygenic)												



10. Und met goa	lerstanding different types of breeding hods, and for what types of crops and breeding Is they are suitable for						
a.	Recurrent mass selection (Continuously selecting desired plants from highly variable population)						
b.	Bulking (Relying on natural/environmental selection over genetically diverse self- pollinated crops)						
c.	Pedigree (Isolating specific "families" of crops, and selecting from the best families)						
d.	Pureline (Selfing plants from desired families until they are genetically uniform)						
e.	Synthetic Populations (Intentionally creating crosses between several different plants and selecting out the best plants)						
f.	Population Cross (Openly creating crosses between several different plants and selecting out the best plants						
g.	Hybridization (Intentionally crossing two parental lines to develop a stable F1 hybrid line)						
h.	Hybrid Stabilization (Saving seed from a hybrid and stabilizing it into an open-pollinated variety)						
i.	Backcrossing (Crossing an F1 hybrid back to one of its parents to recapture a trait lost in the initial breeding process)						