

Comparison of the properties of seed orchard and stand seeds

Eira-Maija Savonen: seed size, germination

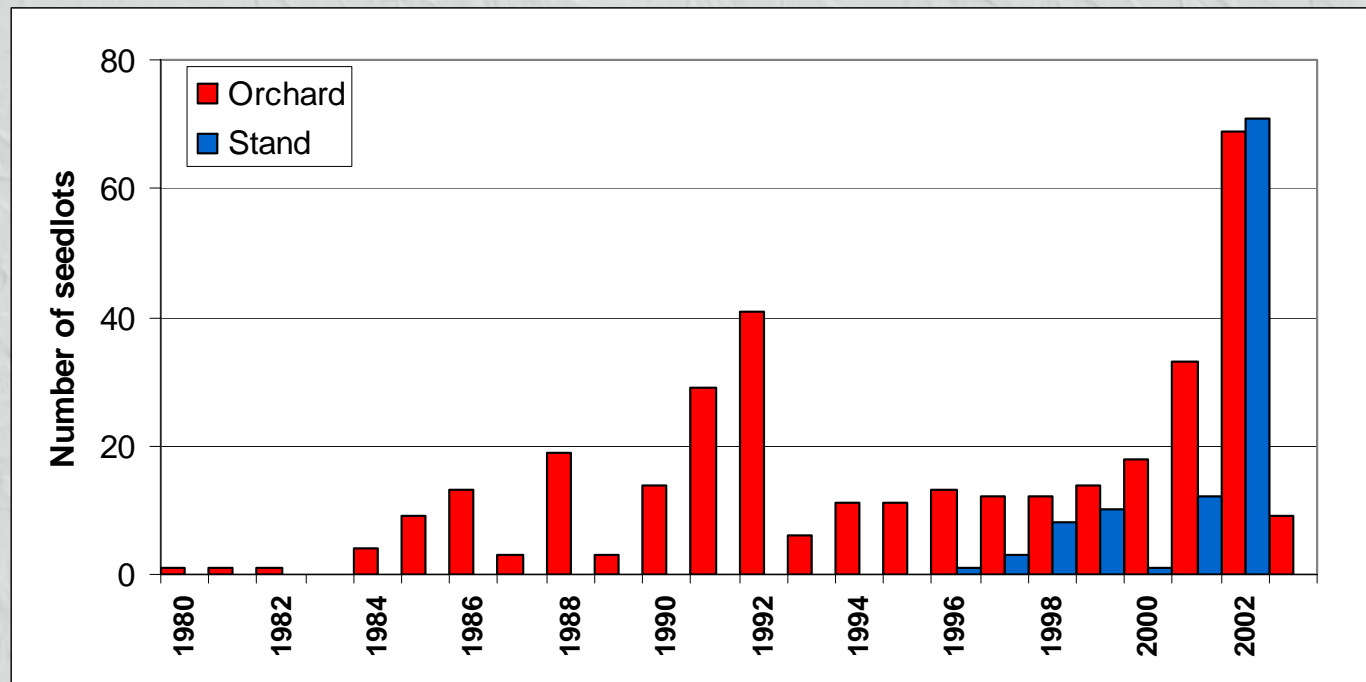
Seppo Ruotsalainen: field experiments

Claim: Seed orchard seeds are bigger than stand seeds

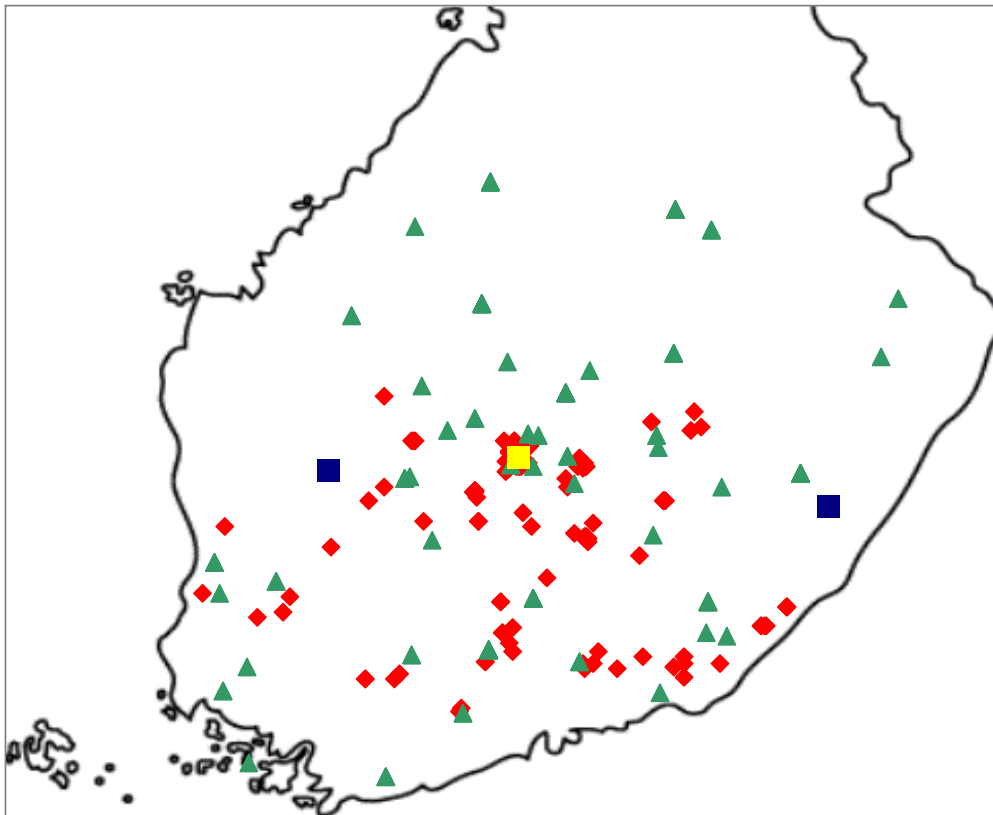
References?

Data: 700 seedlots from two seed extracting stations

Seedlots collected from the same seed orchard in the same maturation year were combined (346 seed orchard and 106 stand seedlots)

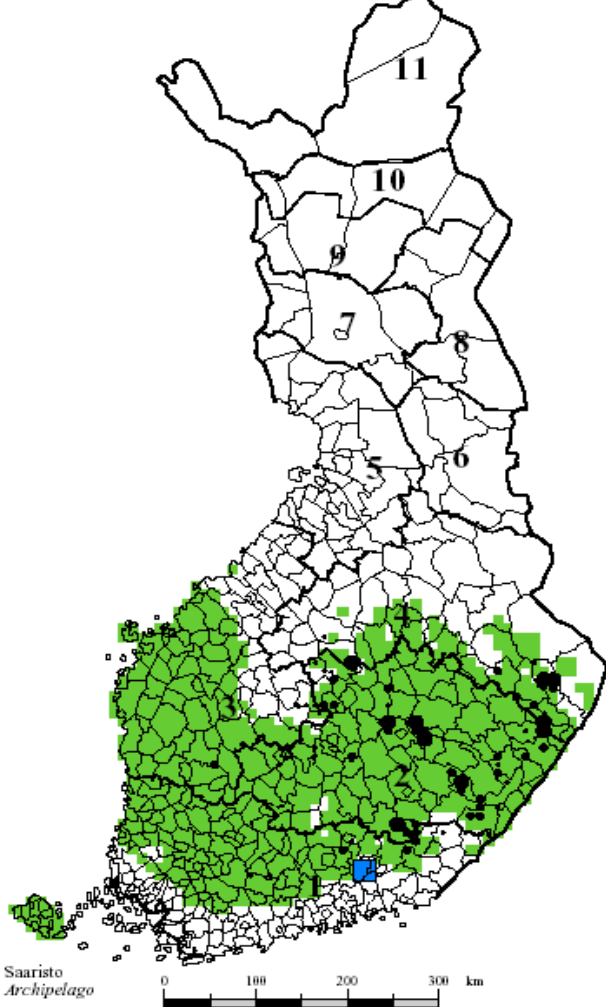


Location of stands and seed orchards

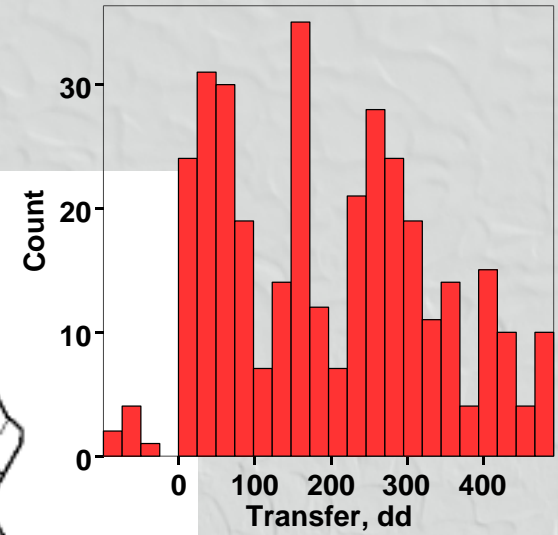
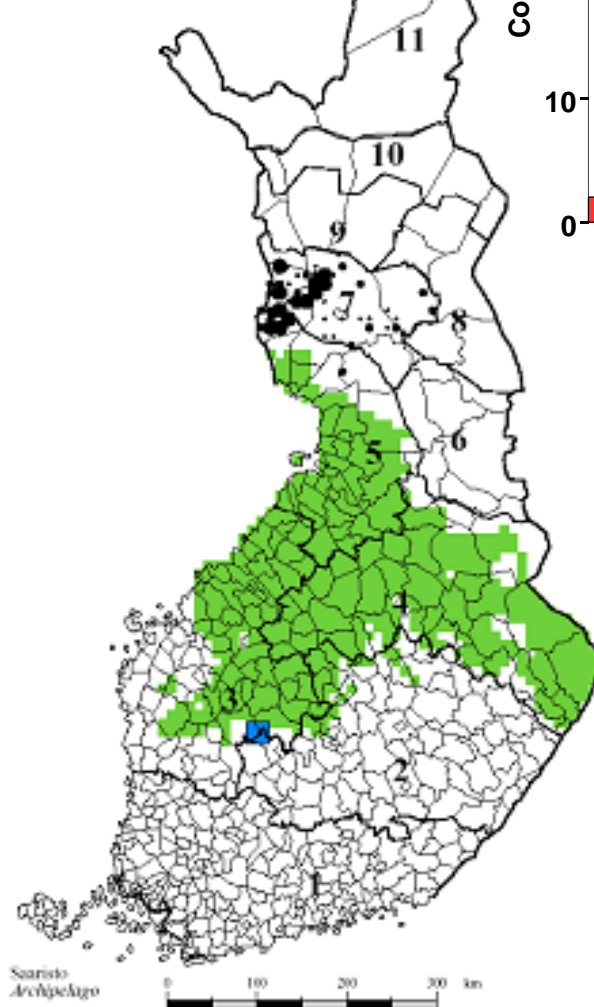


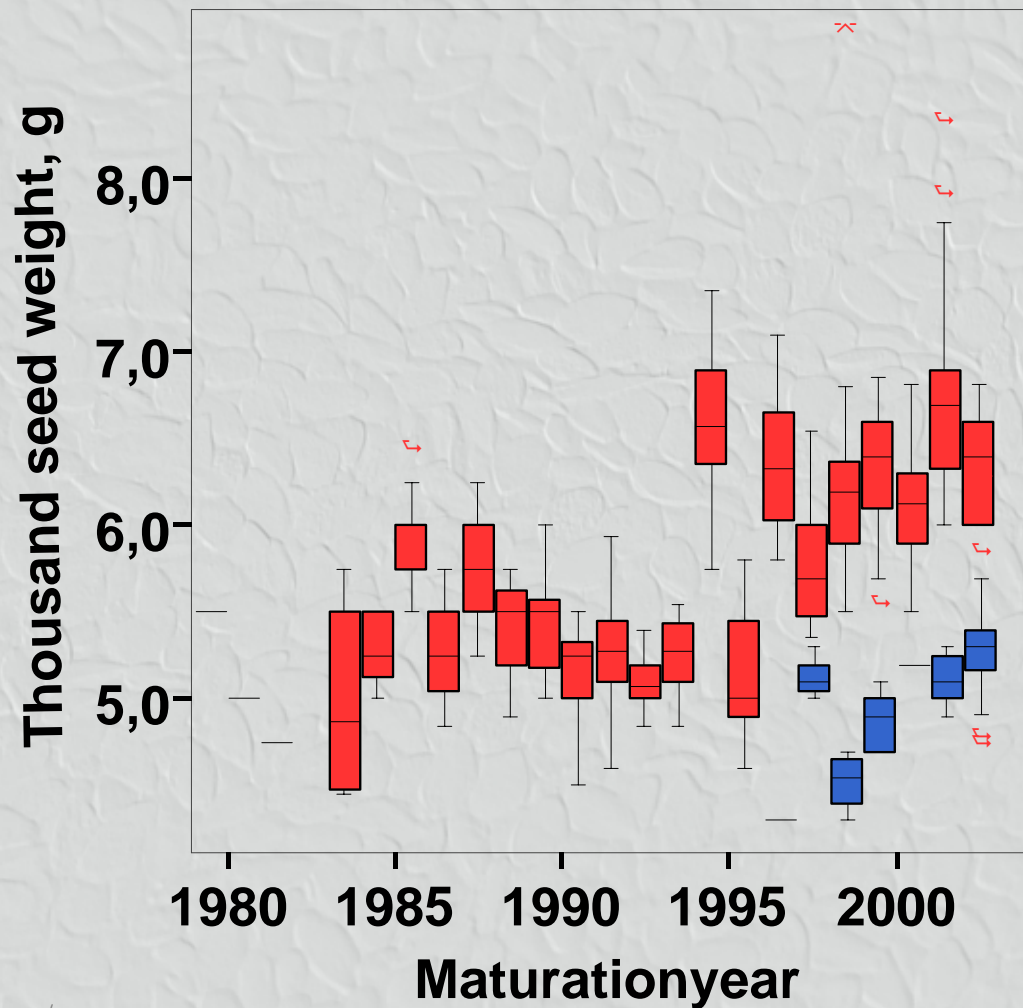
- ◆ Seed orchard
- ▲ Stand seeds
- Jyväskylä
- Parkano
- Punkaharju

Seed orchard 124 Suokanta



Seed orchard 190 Metsä-Ihala





Origin
Orchard
Stand

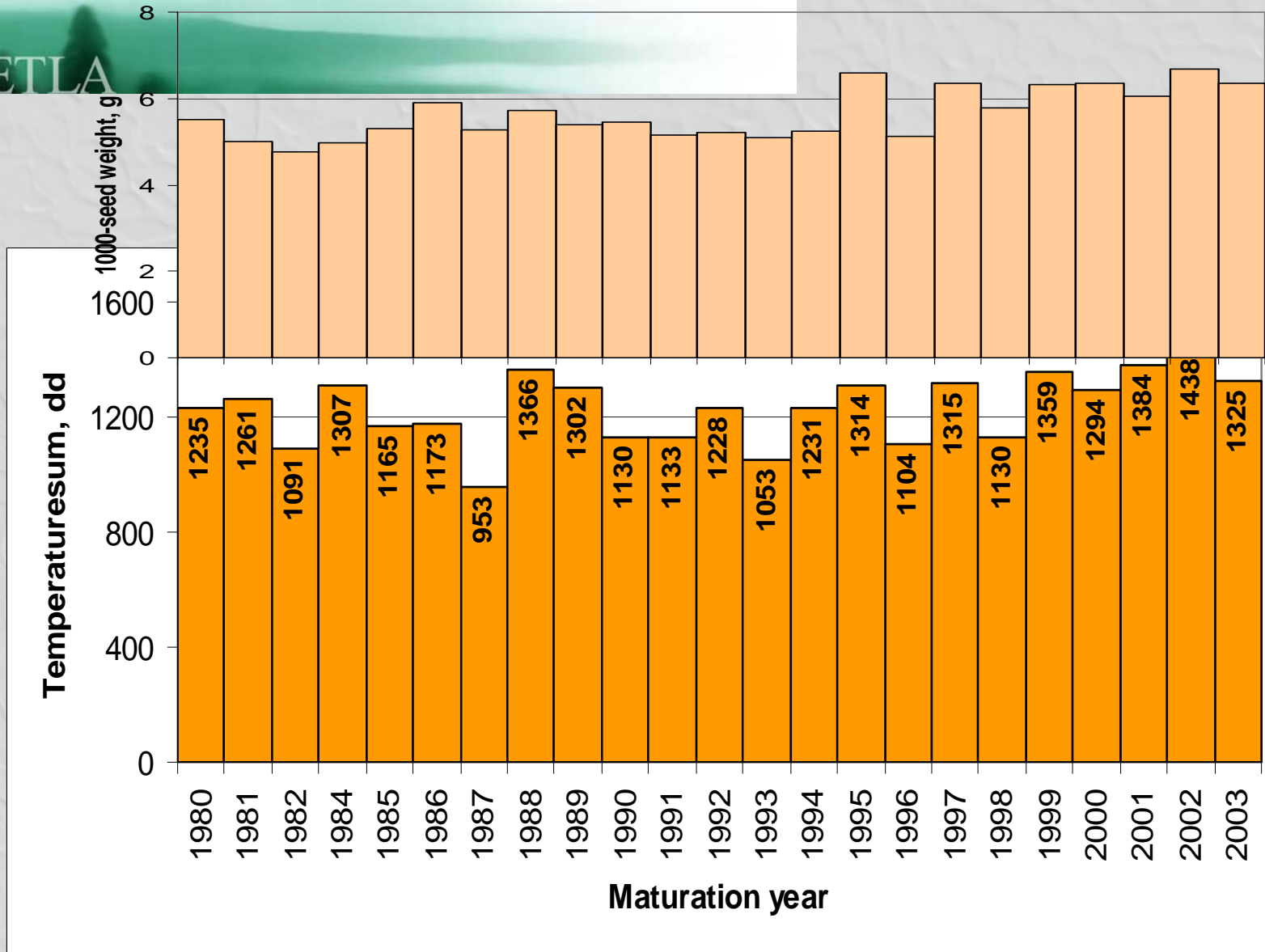
**Average of 1000-seed weight
in seed orchards**

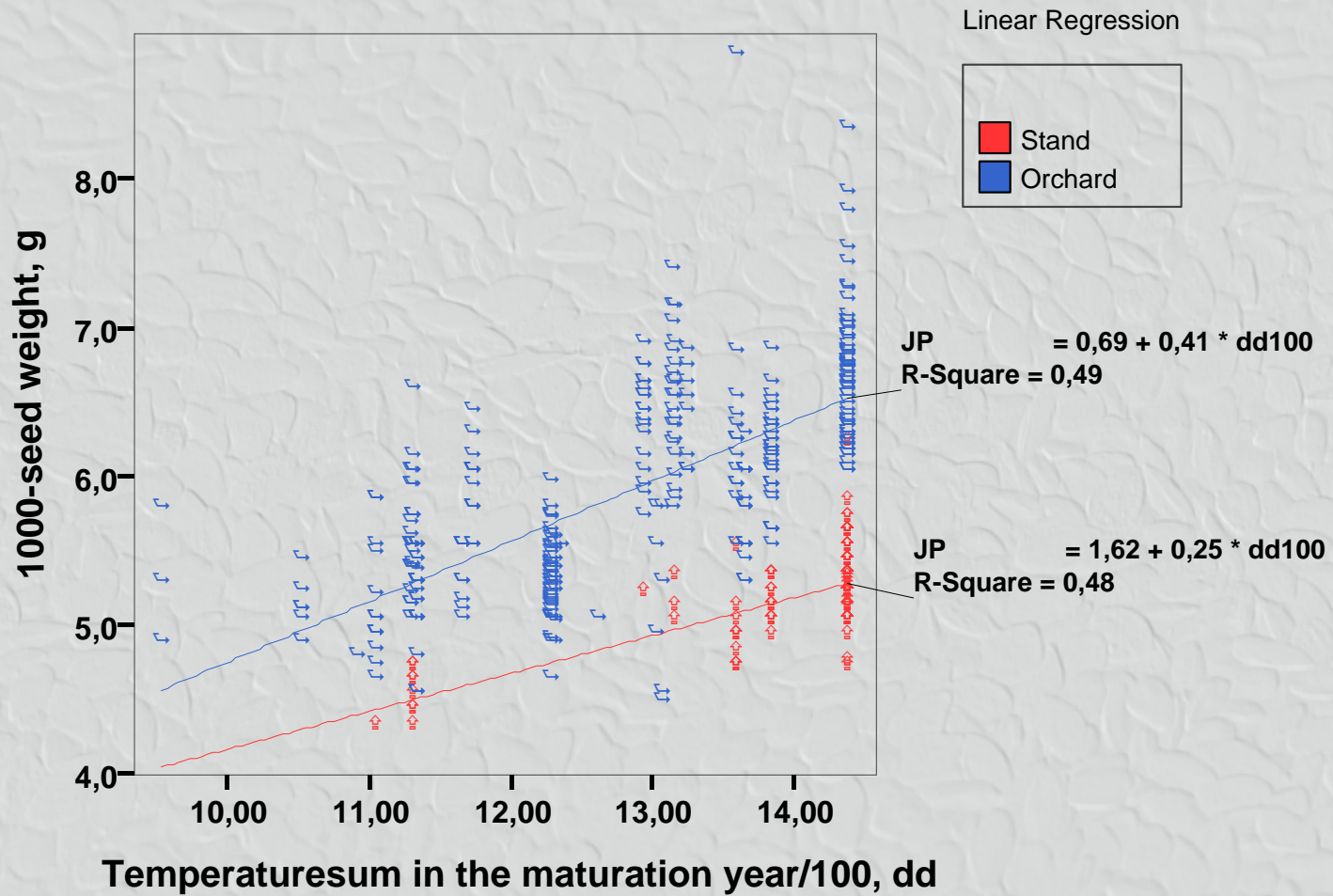
1980 – 1994 5.4 g

1995 – 2003 6.3 g

in stands

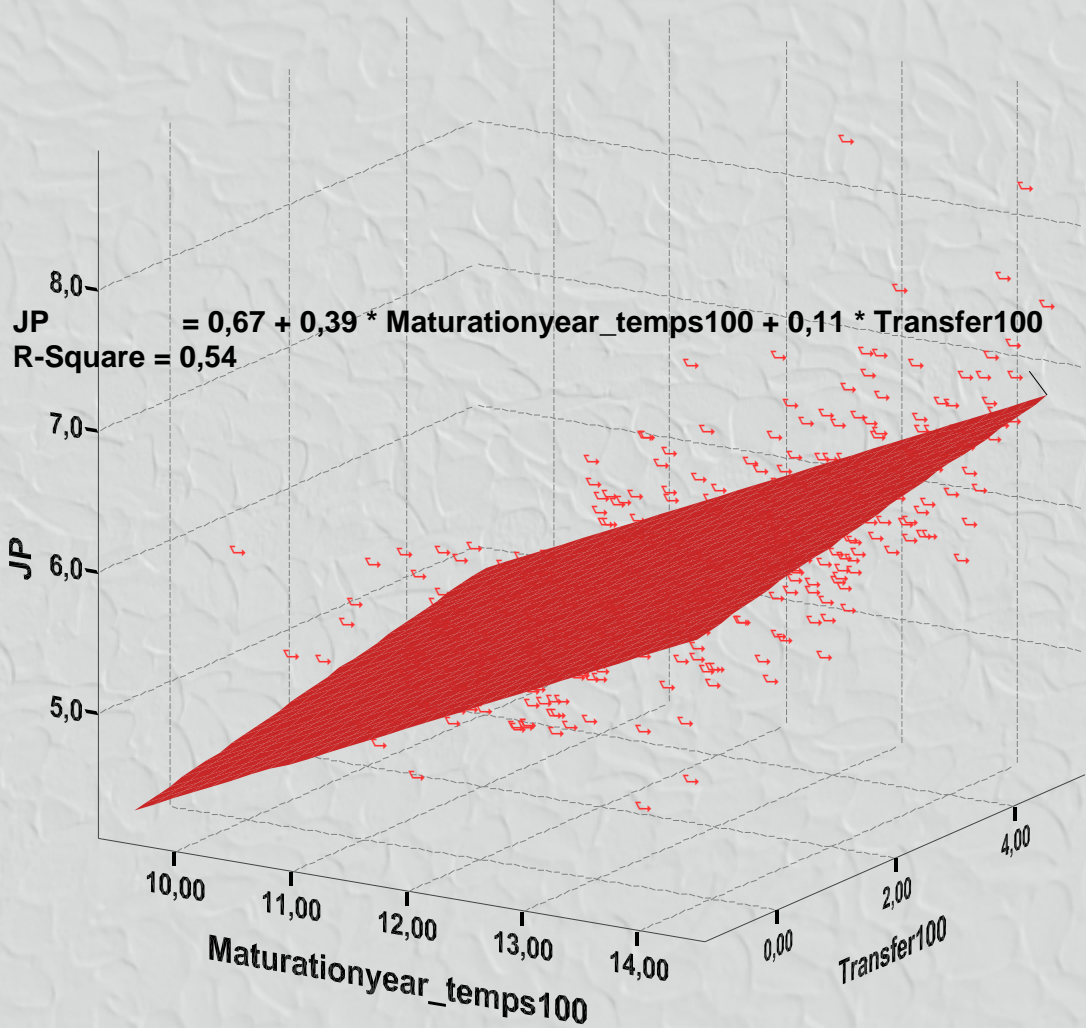
1996 – 2002 5.2 g





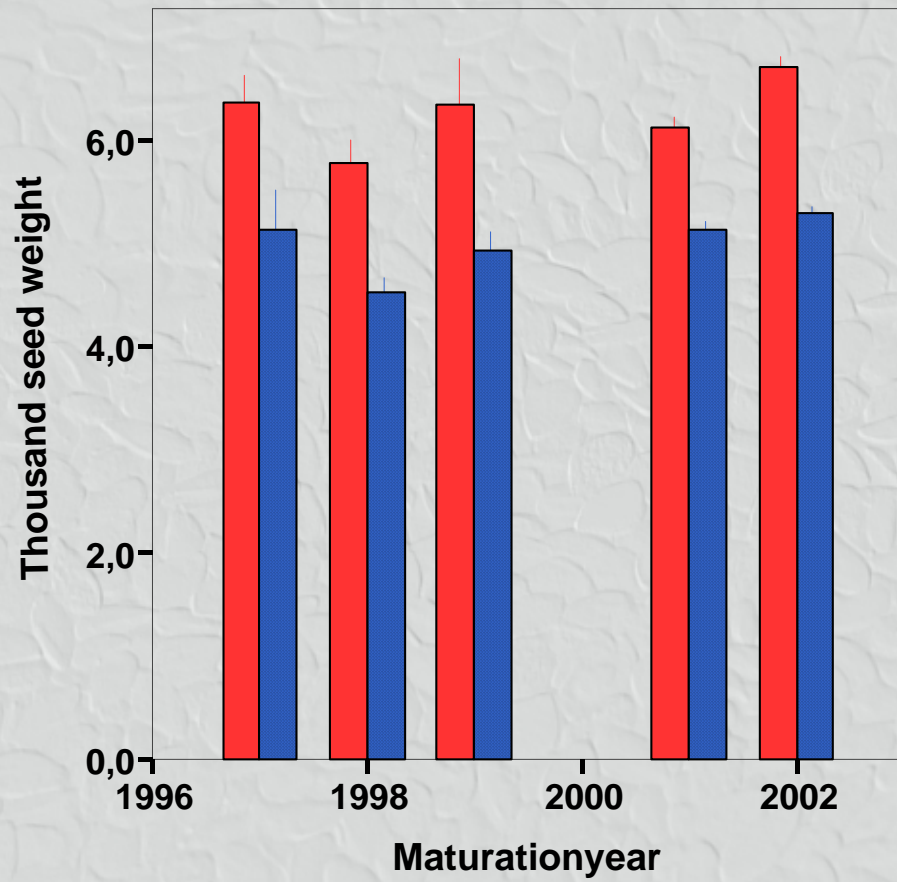


Linear Regression



Model	R	R Square	Adjusted R Square	Std. Error of the Estima
1	0,463	0,21	0,211	0,557
2	0,761	0,58	0,576	0,408
a	Predictors: (Constant), 0=stand,1=Orchard			
b	Predictors: (Constant), 0=stand,1=Orchard, Maturationyear_temps			

Model		Unstandardized Coefficients		Standardiz	t	Sig.
		B	Std. Error			
1	(Constant)	5,164	0,054		95,437	0,000
	0=stand,1=Orchard	0,601	0,068	0,463	8,815	0,000
2	(Constant)	0,257	0,315		0,814	0,416
	0=stand,1=Orchard	1,022	0,057	0,787	18,020	0,000
	Maturationyear_temps100	0,352	0,022	0,686	15,694	0,000
a	Dependent Variable: 1000-seed weight					

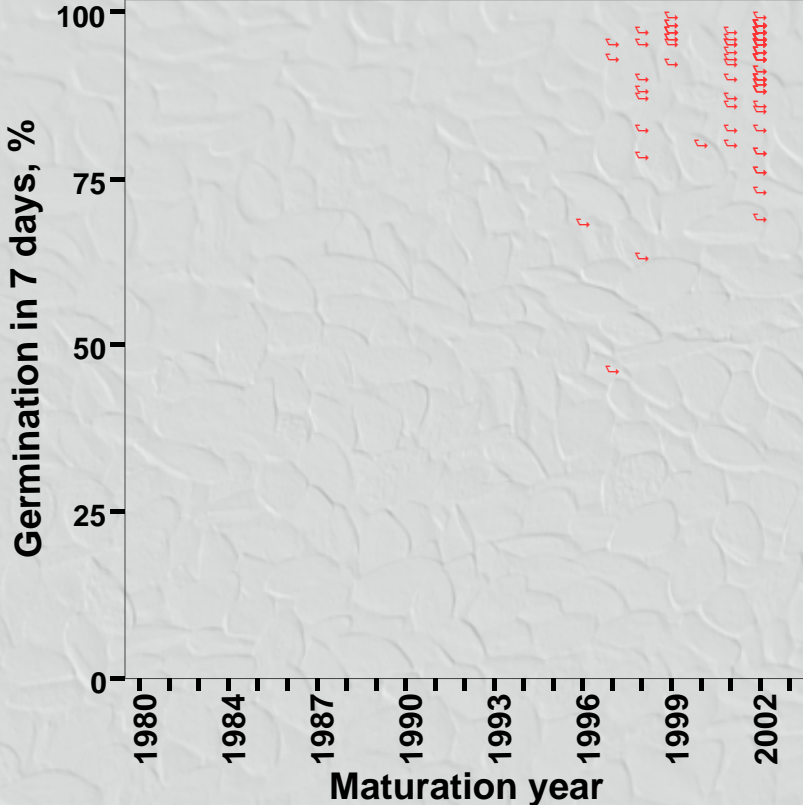


Origin
■ Orchard
■ Stand

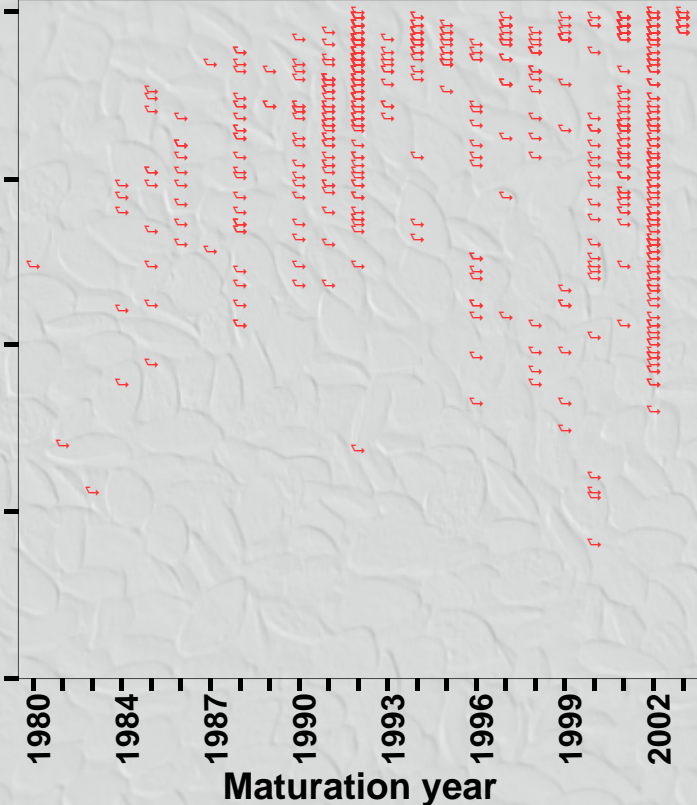
Bars show Means
 Error Bars show 95,0% CI of Mean



Stand

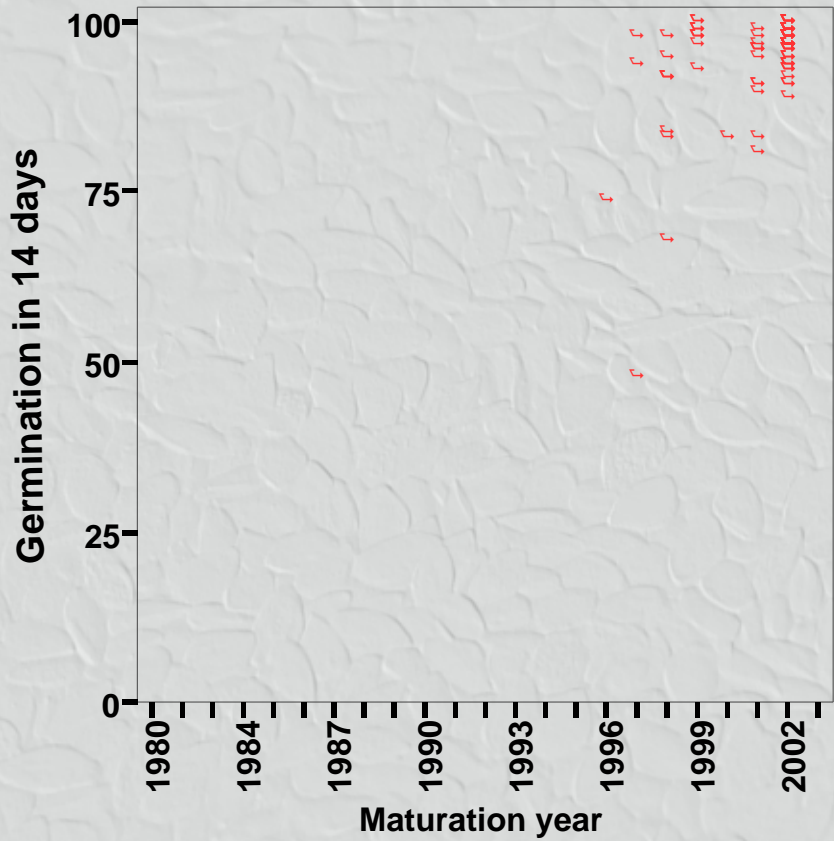


Orchard

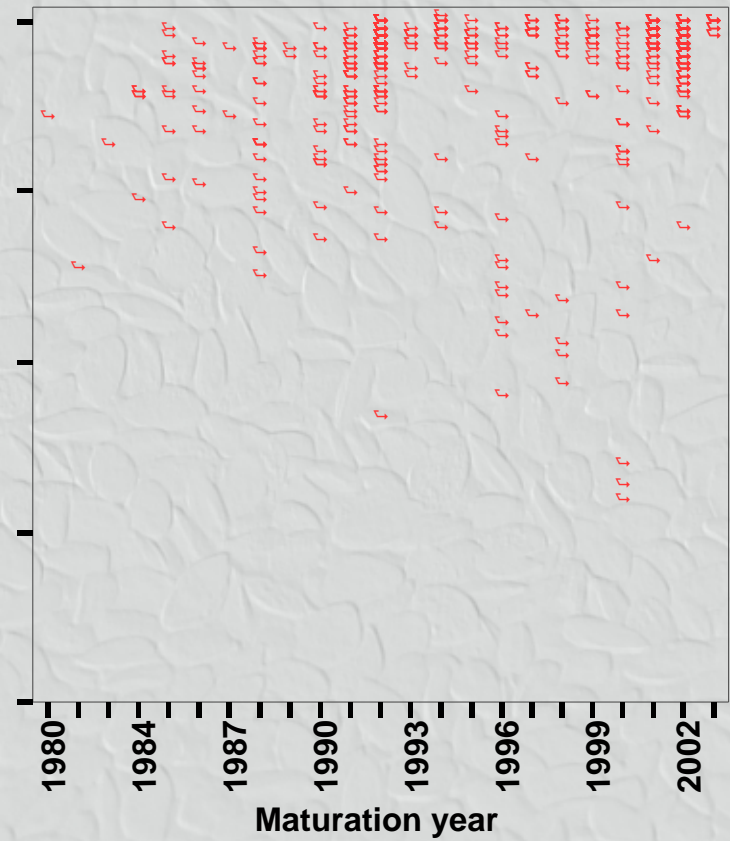


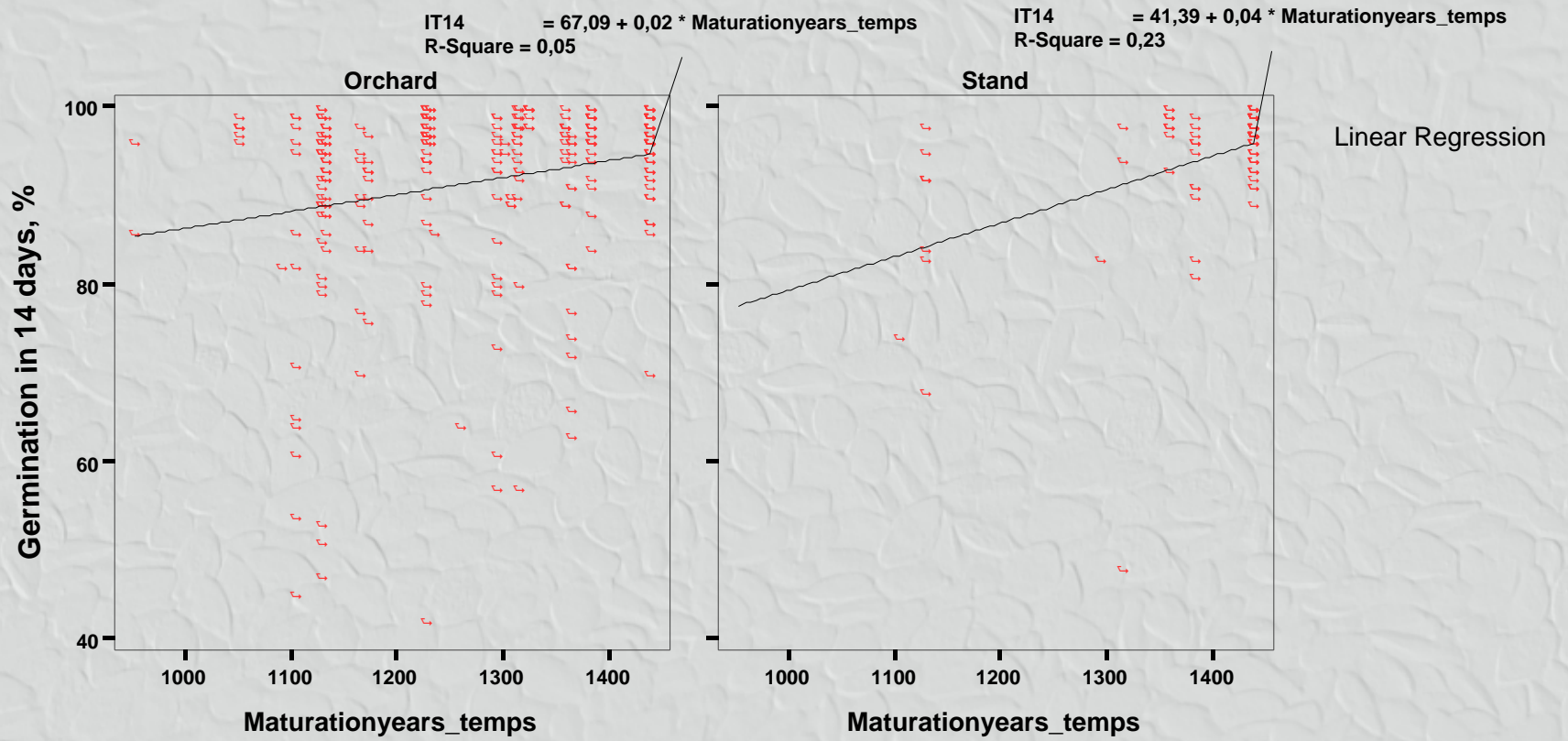


Stand



Orchard





▶ **Conclusions**

- ▶ **Seeds grow bigger in the orchards than in the stands**
- ▶ **The difference is about 1 gram in the 1000-seed weight**
- ▶ **Successive warm summers produce heavy seeds**
- ▶ **Orchards established with northern clones produce heavier seeds than orchards established with local clones**