

Faba bean breeding at Saatucht Gleisdorf,
Austria

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Saatzucht Gleisdorf GesmbH

Breeding of corn, oil pumpkin, faba bean, soy bean, maintenance breeding of millets and buckwheat

Soil type: pseudogley, brown earth, sandy loam

380 m level, illyric climate

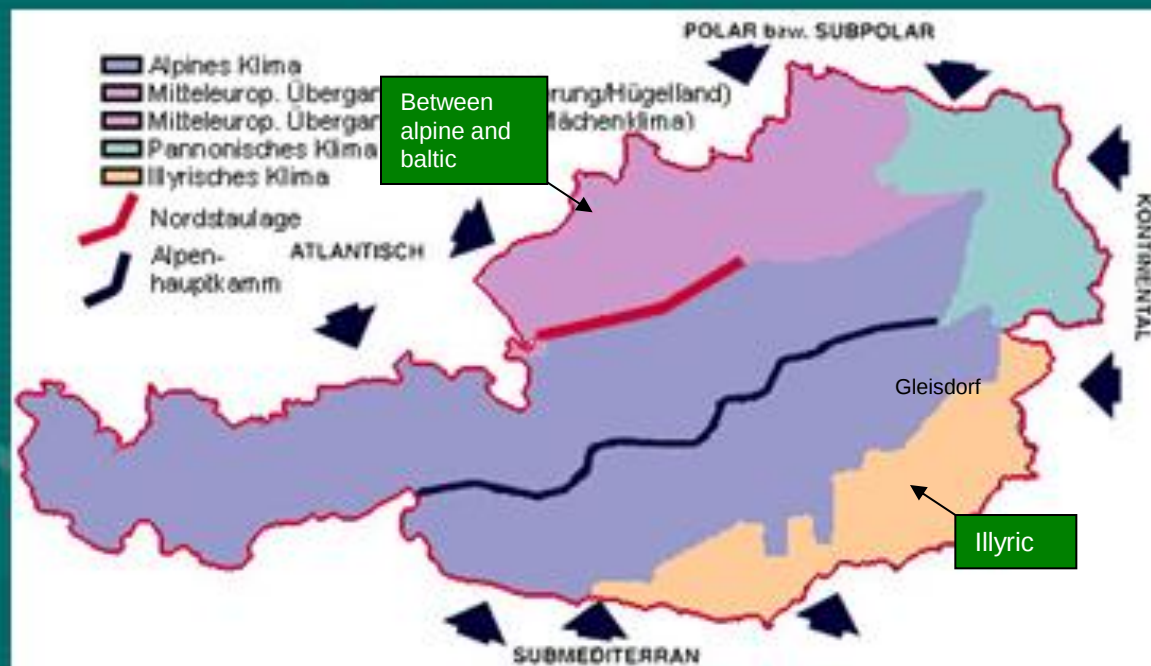
ca. 800 mm annual rainfall

10°C annual average temperature

Location GLEISDORF	2008	2009	2010	2011	2012
Annual average temperature °C	10,5	10,2	9,4	10,2	10,5
Annual rainfall mm	783	982	814	661	863

Acrage of faba bean in Austria: about 6000 ha (80 % organic production)

Climatic zones Austria – possible areas for faba beans



Faba bean breeding has tradition at Saatzucht Gleisdorf (since the beginning in 1947) – variety Kornberger Kleinkörnige 1960 - 1990

National official research was supported in the period 1980 – 1990 via public prebreeding at the Agency for Food and Healthy in Vienna. Material was distributed between the 5 Austrian faba bean breeders.

In the following years 4 private breeders stopped their programs, only Saatzucht Gleisdorf continued.

Saatzucht Gleisdorf was partner in the EU-Project EUFABA (faba bean breeding for sustainable agriculture) 2003 bis 2006



- About 30 % cross-pollination (isolation tunnels)
- Low multiplication rate

Factors limiting seed yield

- Efficiency of water use
- Lack of pollinators
- Insects, pests,

but Faba bean is a crop with a high potential



Agronomic breeding goals in the
Gleisdorf breeding program:

- Increase of yield and yield stability
- Plant architecture
- Lodging resistance
- Suitable seed size
- Adapted maturity



Quality breeding

- 1) Increase of protein content in the seed
- 2) Reduction of ANF's (antinutritional factors)

Tannins: correlated with flower colour

Seed coats of coloured flowering types: 4 bis 8 % tannin

Seed coats of white flowering types: 0 bis 0,6 % tannin → better digestibility of protein and a higher proportion of available energy

pig, chicken and fish feeding

Actual Gleisdorf variety: GLORIA



Reduction of the content of vicin/convicin (glykosides)

important for feeding laying hen

First Gleisdorf lines in microtrials

Resistance breeding

No artificial infection
Little improvements

- Botrytis fabae (chocolate spot)
- Uromyces fabae (faba bean rust)
- **Viruses** (Pea Enation Virus), BLRV (bean leaf roll virus) und BYMV (bean yellow mosaic virus)
- Root diseases caused by Fusarium solani und F. oxysporum, Phoma medicaginis, Rhizoctonia and Phytium



Pea enation virus, 2008



Phoma medicaginis var. pinodella und Fusarium solani

(pathogen penetrates to the vascular system and restricts
transport of water and plant nutrients)



Gleisdorf, 2011

Results organic trials 2010-2012 Bavaria, Germany

Variety	Yield	Protein content	TKW	Plant height	Plant mass (early)	Lodging	Ascochyta	Root diseases
	relativ	%	g	cm				
Julia	113	30,1	444	153	6,4	2,1	2,3	1,5
Alexia	111	28,6	402	145	6,9	3,2	2,3	1,6
Pyramid	104	27,7	533	138	7,5	1,0	3,3	2,5
Fuego	101	29,5	509	138	6,8	1,1	3,9	4,3
Fabelle	99	30,1	480	145	6,9	1,8	3,3	3,0
Isabell	98	30,4	474	145	7,8	1,3	3,0	2,6
Bioro	97	30,6	391	166	7,8	4,5	3,1	2,1
Herz Freya	91	28,8	387	169	8,4	3,0	2,3	2,0
Tangenta	86	30,9	445	128	5,4	1,2	3,6	3,0

Official list of Austrian spring bean varieties

Variety	Breeder	Yield Kg/ha	Maturity	% protein in the seeds (dry matter)	Lodging	Virus	Botrytis fabae	Thousand Kernels Weight
Julia	Gleisdorf	4910	6	31,4	4	3	5	4
Alexia	Gleisdorf	4810	5	31,0	6	4	6	4
Gracia	Gleisdorf	4660	6	29,5	3	3	5	2
Carola	Probstdorf	4080	5	30,1	6	4	6	4
Aurelia White flowering	Gleisdorf	3930	6	31,0	5	3	6	4
Gloria White flowering	Gleisdorf	3500	5	33,8	5	5	5	5

Quelle: AGES, Beschreibende Sortenliste 2012

Registered for „green use“ (cover crop): Bioro (Gahleitner), Felicia (Saatzucht Gleisdorf)

Actual Gleisdorf varieties: Alexia, Julia, Gracia, Gloria, Felicia

2013 seed production and marketing in Austria, Germany, Sweden, Baltic countries



Thank you for your attention !



www.saatzuchtgleisdorf.at