

Farmer's benefits: Fusarium tolerance rating in Austrian corn variety registration and preharvest information system on mycotoxin status

Austria, Vienna

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Corn variety rating

AGES is rating fusarium corn cob tolerance of registered corn varieties since the KOFUMA research project (2011-2013) and the established following national monitoring programs (2014 – 2016). Up until now Austria is the only EU-country characterizing this feature of corn varieties with FAO 220 to 450 which are produced in Austria.

The rating of fusarium tolerance put together in minimum all biennial results based on visual observation of

- natural fusarium cob attack,
- attack due to artificial infection (penetration and proliferation degree) and
- analysis of fusarium toxins (ELISA test kits) of these trial samples.

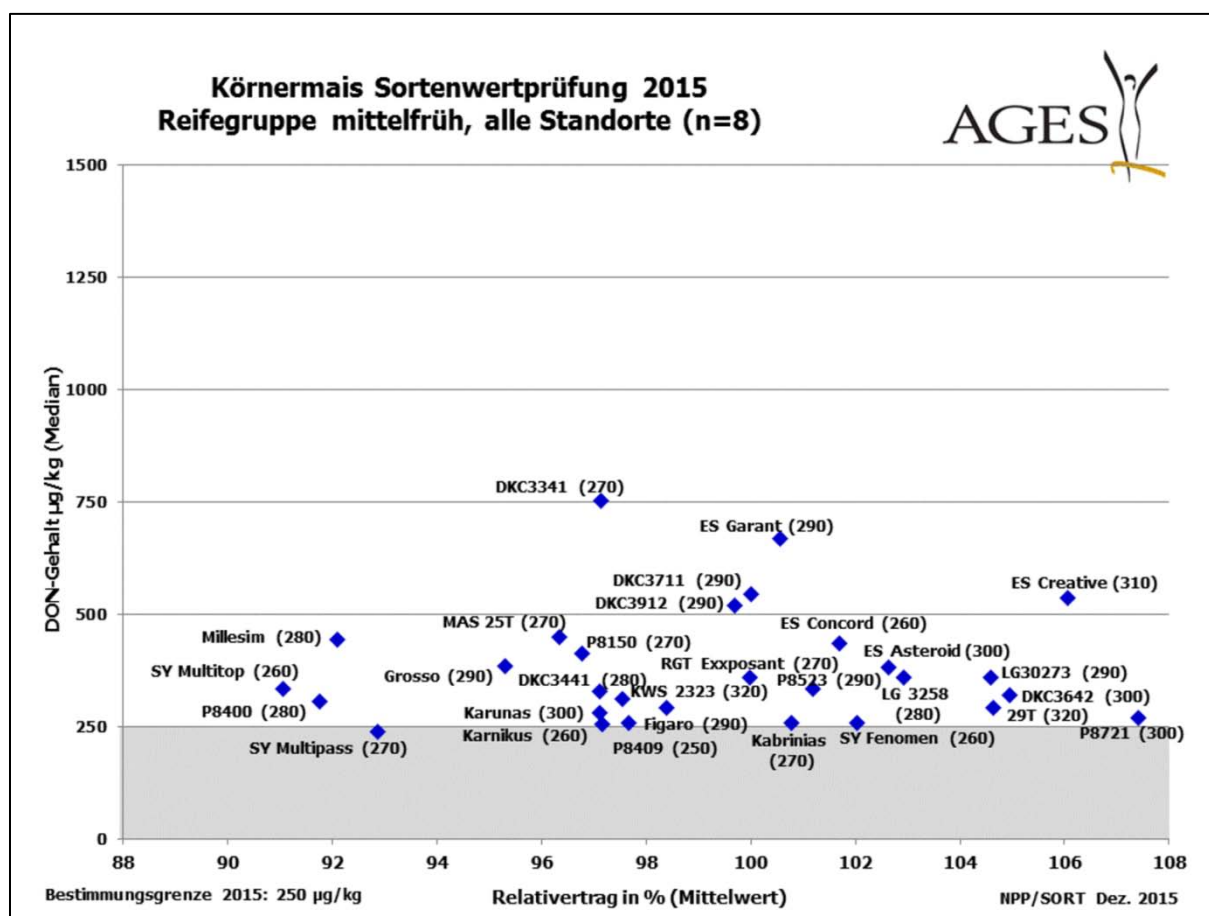
Each year about 1100 samples of more than 100 varieties from several locations all over Austria - official registration trials as well as of recommendation trials done by the agricultural chambers of agriculture- have been analysed in this way. Farmers can use now these data in minimizing their production risk and optimizing also their economical output as a large part of them is also using onfarm harvested corn in their animal rearing.

After registration in December the updated variety lists as well as the annual fusarium toxin diagrams for the four corn ripening groups with all Austrian data but also for some special Austrian regions are going online. So farmers get very soon decision support for their futural variety selection as shown in the exemplary variety list and by the graphs for varieties with FAO 250/260 - 320.

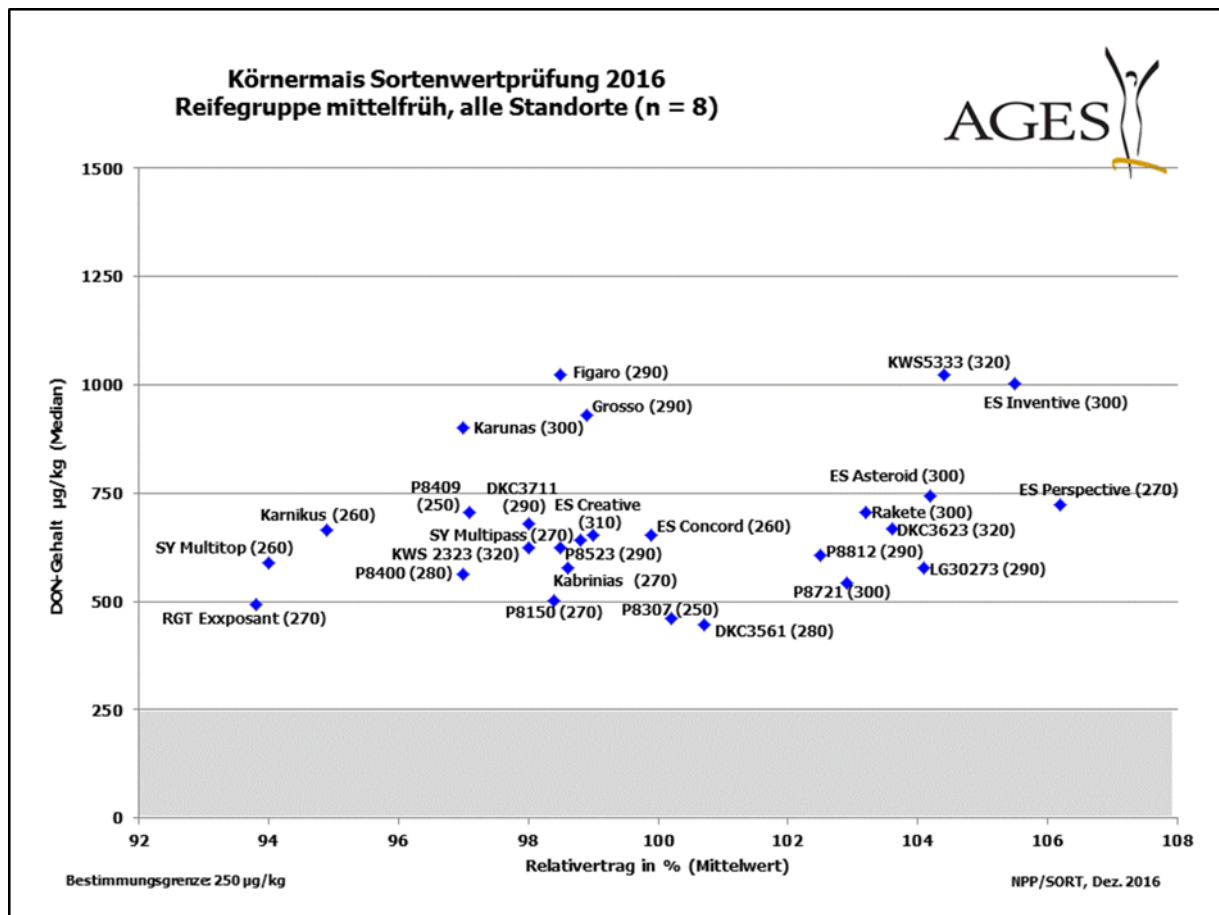
CORN																	
VARIETIES, NATIONALITY	FAO NUMBERS	YEAR of REGISTRATION	HYBRID TYPE	PRODUCTION TYPE	KERNEL TYPE	CORN YIELD	BROKEN PLANTS	LODGING	YOUTH DEVELOPMENT	HELM. TURCICUM	HEIGHT of PLANTS	BRANCHING TENDENCY	LEAF MATURATION	CORN COB FUSARIUM ROT	DRY MATTER YIELD	COB PROPORTION	SILAGE
VARIETIES WITH ACTUAL YIELD DATA																	
P8409, USA	250	2015	S	KM,SM	Z	2	2,5	2	5	5	7	-	7	5	3	2	
ES Concord, D	260	2012	S	KM,SM	HZ	3	2,5	3	4	4	8	3	5,5	4	-	-	
Karnikus, D	260	2013	S	KM,SM	HZ	2,5	2	3	3	4	7	2	6,5	-	-	-	
SY Fenomen, CH	260	2015	S	KM,SM	Z	2,5	2,5	2	5	5	7	4	7	6	-	-	
SY Multitop, CH	260	2011	S	KM,SM	H	3,5	2	3	3	4	7	4	6,5	3	3	2	
DKC3341, USA	270	2014	S	KM,SM	HZ	3	2	2	2	6	8	2	5	7	3	3	
Kabrinias, D	270	2015	S	KM,SM	Zh	2	2,5	2	3	4	7	-	7	4	-	-	
MAS 25T, F	270	2010	S	SM,KM	H	3,5	2	2	3	5	8	3	4,5	7	3	2	
P8150, USA	270	2013	S	KM	Z	2,5	2,5	2,5	3	5	8	3	5,5	6	3	3	
RGT Exxposant, F	270	2015	S	KM	Zh	3	2	2	4	6	8	-	5,5	5	4	2	
SY Multipass, CH	270	2014	S	KM	H	3	3	4	3	6	6	3	6,5	4	4	3	
DKC3441, USA	280	2014	S	KM	Zh	3	2	2	4	5	6	4	5,5	5	3	2	
LG 3258, F	280	2009	S	KM,SM	HZ	3	2,5	2	2	6	8	3	6,5	7	3	2	
Millesim, D	280	2011	S	KM	HZ	3,5	2,5	3	2	6	6	2	6	5	-	-	
P8400, USA	280	2010	S	KM	Z	3,5	2,5	3	3	5	7	3	6	5	-	-	
DKC3711, USA	290	2011	S	KM,SM	Z	2,5	2,5	2,5	4	4	5	3	5	5	-	-	
DKC3912, USA	290	2011	S	KM,SM	Zh	3	3,5	2	4	4	7	3	5	5	-	-	
ES Garant, D	290	2009	T	SM,KM	HZ	3	2,5	2	3	5	8,5	3	4,5	7	2	4	
Figaro, D	290	2015	S	KM,SM	HZ	2,5	2	2	2	4	8	-	4,5	5	1	3	
Grosso, D	290	2010	S	KM,SM	HZ	3	2,5	3	2	5	7	2	5,5	5	2	2	
LG30273, F	290	2014	S	KM,SM	HZ	2,5	2,5	2	2	5	8	2	6	4	3	2	
P8523, USA	290	2011	S	KM	Z	3	2	2	5	5	7	2	5,5	5	3	4	
DKC3642, USA	300	2013	S	KM,SM	Z	3	3,5	2	3	3	8	4	5,5	5	2	3	
ES Asteroid, D	300	2014	S	KM,SM	Zh	2	2	3	3	6	8	2	5	5	2	2	
Karunas, D	300	2014	S	KM,SM	Zh	3	3	2	3	5	6	2	6	5	4	3	
P8721, USA	300	2015	S	KM,SM	Z	1	2	2	3	5	8	-	4,5	5	2	3	
ES Creative, D	310	2015	S	KM,SM	Zh	2,5	2,5	2,5	3	5	7	3	4,5	6	-	-	
29T, USA	320	2015	S	KM,SM	Z	2,5	2	3	4	5	6	-	4,5	-	-	-	
KWS 2323, D	320	2013	S	KM,SM	Zh	2,5	2	3	3	4	8	3	6	4	3	3	
NEW LISTED VARIETIES 2016																	
P8307, USA	250	2016	S	KM,SM	Z	2	3,5	3,5	4	4	6	2	7	*	-	-	
ES Perspective, D	270	2016	S	KM,SM	Z	1,5	3	2	3	6	8,5	3	5,5	*	-	-	
DKC3561, USA	280	2016	S	KM,SM	HZ	2,5	2,5	2,5	3	5	8,5	3	5	*	-	-	
P8812, USA	290	2016	S	KM,SM	Zh	2	3	2	4	5	7	2	5,5	*	3	3	
ES Inventive, D	300	2016	S	KM,SM	Zh	1,5	2	2	3	5	8	2	5	*	2	3	
Rakete, D	300	2016	S	KM,SM	HZ	2,5	2,5	2	2	6	7	4	4,5	*	-	-	
KWS5333, D	320	2016	S	KM,SM	Z	2,5	2,5	2	3	5	8	2	6	*	-	-	

* Notice graphs with DON-data

siehe <http://www.baes.gv.at/de/pflanzensorten/oesterreichische-beschreibende-sortenliste/mais/>



New listed varieties in December 2015: P8409 (250), SY Fenomen (260), Kabrinias (270), RGT Exxposant (270), Figaro (290), P8721 (300), ES Creative (310) and 29T (320)



New listed varieties in December 2016: P8307 (250), DKC3561 (280), P8812 (290), Rakete (300), ES Perspective (270), ES Inventive (300) and KWS5333 (320)

For further graphs of the other groups of ripening take the following LINK:

<http://www.baes.gv.at/pflanzensorten/oesterreichische-beschreibende-sortenliste/mais/mykotoxingehalte/>

So the interested agribranch get information about the official rating for fusarium cob rot tolerance but also about the absolute toxin contents of the varieties in the different years and regions of Austria.

Farmers can learn from these diagrams at first glimpse that there are similar productive, high yielding varieties often ripening sooner and with less fusarium risk than the varieties which they were used to seed.

Since last year AGES offers under <https://www.ages.at/themen/landwirtschaft/sorte/sortenfinder-online/> an interactive internet tool for an optimized and quick variety selection. The farmer chooses and prioritizes variety characteristics important for him and curtails the scale range of the feature (f.e. yield > 2, fusarium tolerance < 4, FAO 250 – 300...) and gets on this a basis a proposal for a handful of varieties fulfilling his demands. After checking the prices of his suppliers he can order the next year amount of seed quite quick on a well experienced, objective, transparent and traceable basis.

Preharvest information system

AGES and the chamber of agriculture are publishing the fusarium monitoring results promptly and updated on a map online (<https://warndienst.lko.at/?id=2500...6559>) after the three/four planned target dates. So the farmers can react on the basis of red hot data with starting immediately harvest if results in trials nearby their farm show worrying results. The warning system is structured on the traffic light system (green – orange – red) principle as the research and monitoring projects shows that a further harvest delay will jeopardize fodder quality as fusarium toxins normally are increasing to exploding when upgrowth conditions for fusarium –warm and wet weather- are favorable. (for details read the “Monitoring program for mycotoxins in corn 2016” under Link: <http://www.baes.gv.at/pflanzensorten/oesterreichische-beschreibende-sortenliste/mais/mykotoxingehalte/>).

More news from: AGES – Austrian Agency for Health and Food Safety

Institute for Sustainable Plant Production / Variety Registration

Website: <https://www.ages.at/themen/landwirtschaft/sorte/bsl/>