

# Variety mixtures in Danish VCU testing

**17<sup>th</sup> EU-VCU EXPERTS' GROUP MEETING**  
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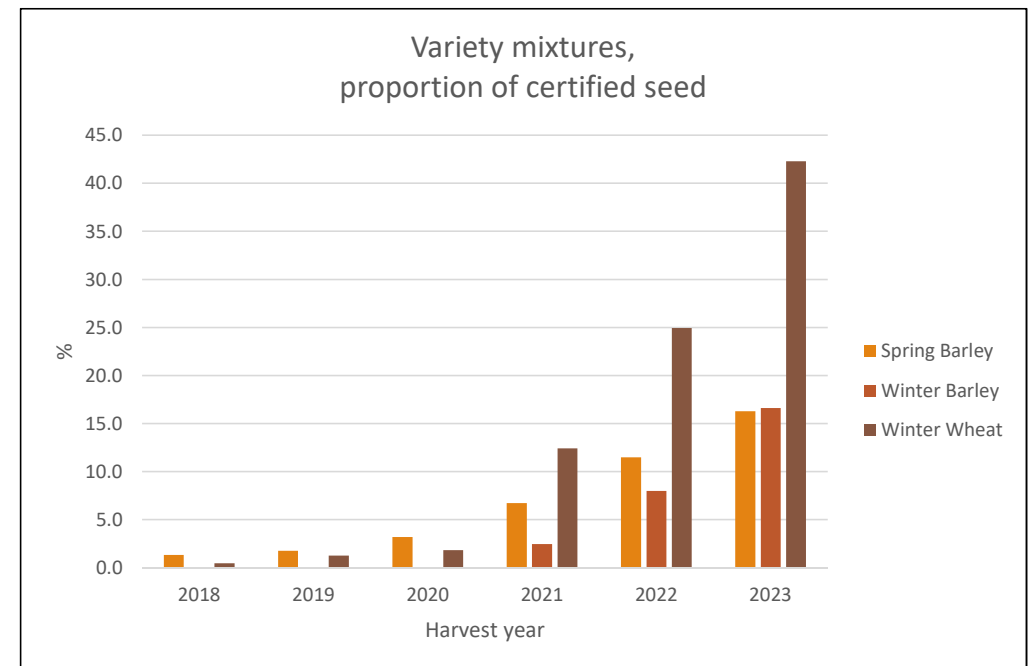
## Variety mixtures as yield reference in Danish VCU trials

- Introduced in 1994 coming from a system with one variety as reference
- Presently used in all crops except for sugar and fodder beets, potatoes and spring wheat
- Composed of three to four recently registered varieties to the Danish variety list with a wide application in Danish agriculture
- Means of having a stable yield reference over years – less susceptibility to severe events as outwintering, drought, disease etc. and by rolling replacement of varieties
- Fewer plots than calculating mean of 3 to 4 individual varieties
- Benchmark for decision making with regards to yield level – cf. average of listed varieties entering the integrated trial system
- Ongoing review of 30 years of winter wheat data with regards to yield and disease susceptibility of mixtures

## Commercial mixtures of winter wheat in Danish variety trials

### Increased use due to:

- Large proportion of cereals used as fodder
- Marketing by breeders and seed suppliers
- Inclusion of new high yielding varieties in mixtures
- Added yield compared to mean of components
- Fewer costs – 2 rather than 3 fungicide treatments
- Reduction of risk (eg. severe outwintering or disease)
- Reduced resistance to fungicides
- Introduction of bread wheat variety mixtures



85-90% of seed used in DK is certified

# Legislation and approval

## Requirements for obtaining certification of a variety mixture

The mixture should

- consist of certified components
- show scientific proof that it is especially suited to limit the proliferation of certain pests
- consist of 3 or 4 components

The components should

- have an average yield index of at least 95 over the past 5 years. If fewer testing years, the index should be 97
- have straw lengths within 15 cm for spring cereals and 20 cm for winter cereals
- mature within five days
- have susceptibility to relevant fungal diseases lower than the average of the five greatest varieties in the past growing season

## Commercial variety mixtures in yield trials

Recent reports and studies have indicated increased yield and reduced need for fungicides

Ministry of environment has subsidised the test of variety mixtures in the integrated variety test system

Winter wheat

- 5 in 2021
- 6 in 2022
- 6 in 2023
- 4 in 2024!

# Yield

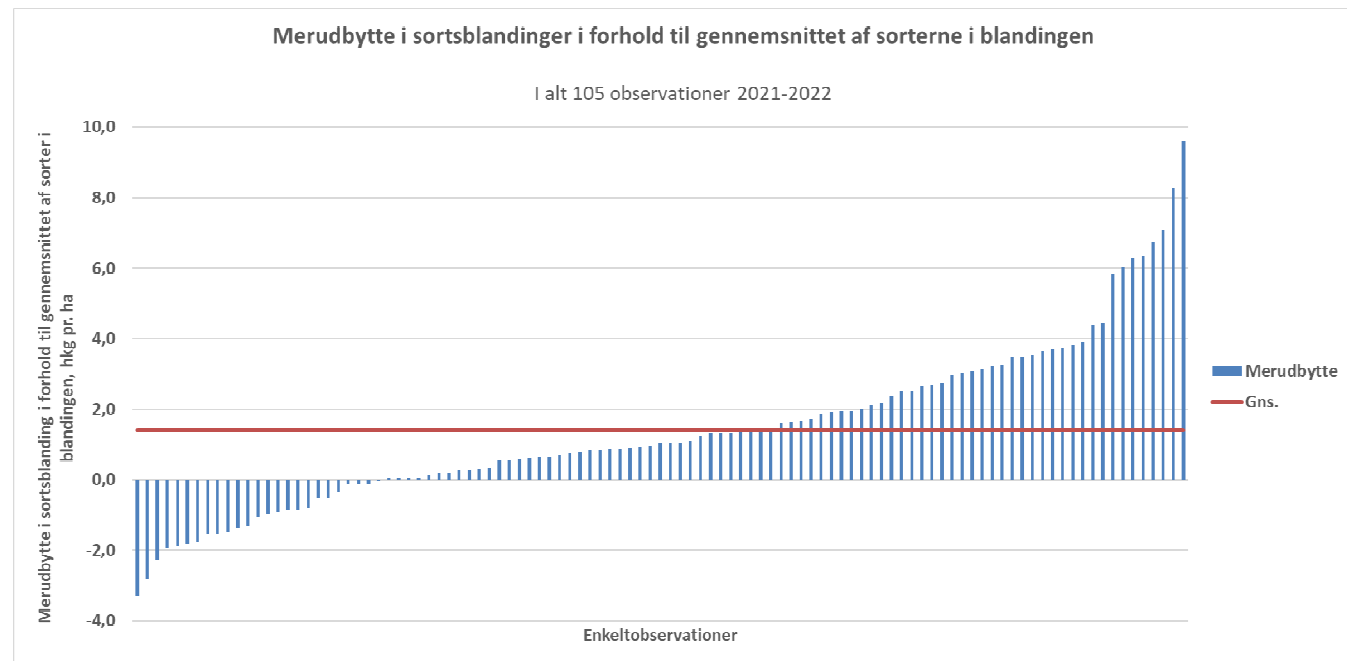
Out of 49 entries, three of the six mixtures ranked in top 10 for yield in 2022.

Vinterhvede	Landsforsøg	Seneste år			
Udbytteforsøg					
	Kerneudb. (fht) ↓	Kerneudbytte (hkg/ha) ↑	Merudb. for svampebek (hkg/ha) ↑	Kerneudb. uden svampebek (hkg/ha) ↑	
Viser 49 af 49 rækker					
År	2022	2022	2022	2022	
LSD	2,0	3,00	4,00	5,00	
<input type="checkbox"/> NOS 514218.07	106 (10)	126,5 (10)	3,6 (4)	122,6 (4)	
<input type="checkbox"/> Guinness	105 (10)	125,2 (10)	4,0 (4)	119,0 (4)	
<input type="checkbox"/> Champion	103 (10)	123,1 (10)	8,7 (4)	113,4 (4)	
<input type="checkbox"/> HK-hvedeMIX 2022	103 (10)	122,5 (10)	4,8 (4)	114,6 (4)	
<input type="checkbox"/> DLG Wheat Mix Star	102 (10)	121,8 (10)	3,1 (4)	116,6 (4)	
<input type="checkbox"/> Pondus	102 (10)	121,8 (10)	5,6 (4)	113,6 (4)	
<input type="checkbox"/> KW 2528-20	102 (10)	121,4 (10)	3,5 (4)	116,2 (4)	
<input type="checkbox"/> KWS W434	102 (10)	121,3 (10)	8,2 (4)	108,9 (4)	
<input type="checkbox"/> NOS Hvede Mix 2220	101 (10)	120,6 (10)	3,6 (4)	113,6 (4)	
<input type="checkbox"/> SU Willem	101 (10)	120,5 (10)	4,7 (4)	114,8 (4)	
<input type="checkbox"/> RGT Stokes	101 (10)	120,2 (10)	5,5 (4)	111,8 (4)	
<input type="checkbox"/> SY Revolution	101 (10)	120,0 (10)	5,1 (4)	111,7 (4)	
<input type="checkbox"/> Kvium	101 (10)	119,9 (10)	7,0 (4)	112,2 (4)	

## Added yield

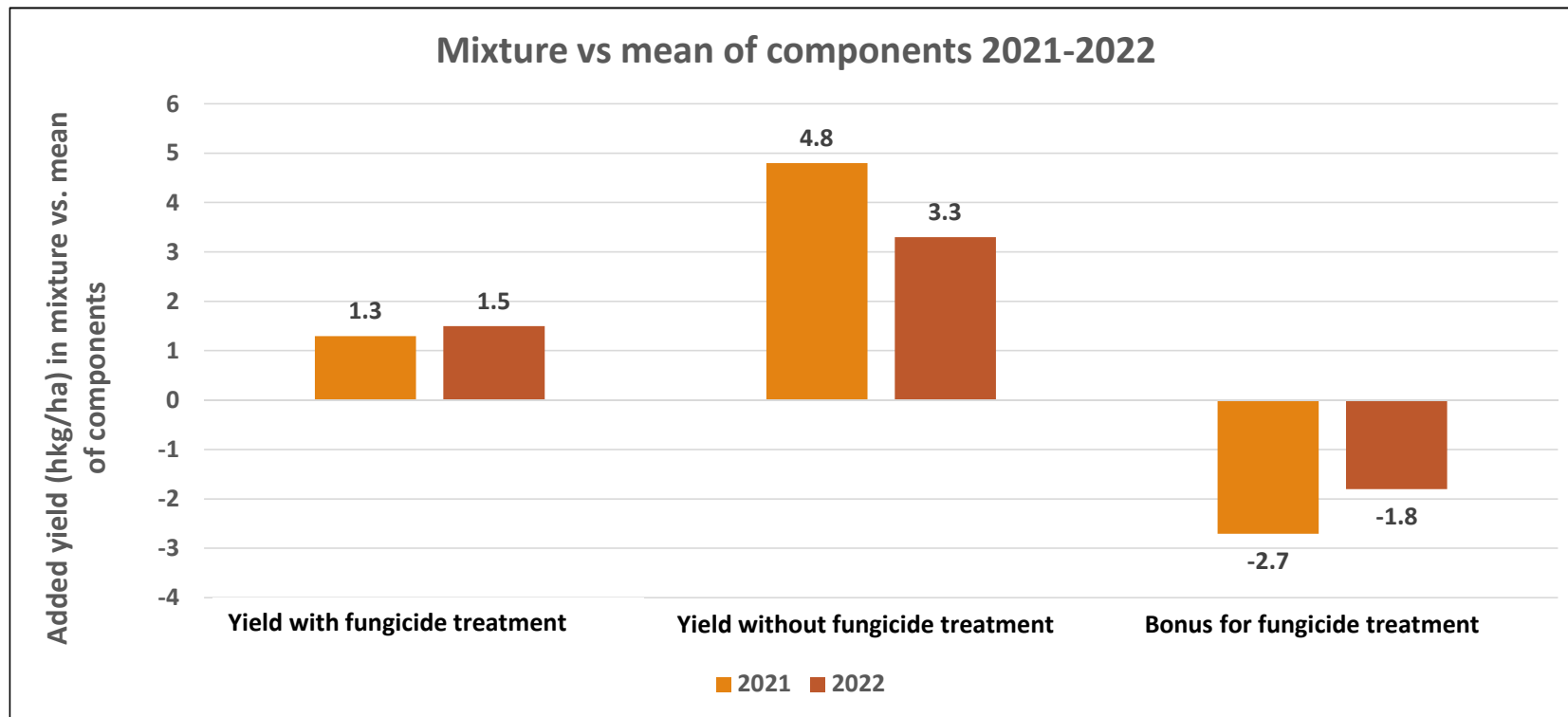
Single observations of added yield of mixture compared to average of components during 2021 and 2022.

Approx. 75 % of observations show a bonus to the mixture.





# Added yield



# Disease

