Onion variety trial in the Netherlands 2001- 2004

Report from the first year – 2001

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Within the framework of the project Passende Rassen (Suitable Varieties), which runs from 2001 till 2004, we started in 2001 with 2 red and 16 yellow onions (for storage) in a variety trial in three replications on the organic farm of the OBS at Nagele (NOP). The same varieties were grown on the conventional, though chemically untreated field of Praktijkonderzoek Plant en Omgeving PPO- Lelystad to see in how far the outcomes differ and in which way organic farming can join in with the regular variety trials.

Dutch organic growers are looking for a globe shaped or round onion variety which is stable in yield and quality over the years and yields a minimum of 30 - 35 tons/ha. A good variety must not mature too late, so that a sufficient yield can be expected before possibly downy mildew (*Peronospora destructor)* and leaf rot (*Botrytis squamosa allii)* have set in, and it has to ripen in time for good storage quality. Organic farmers experience that varieties which are rich in leaves seem to form a buffer for dryer periods and take each other along better in the time that foliage is falling down. Moreover it turns out from this research that varieties with are richer in leaves yield higher and do not necessarily have to be more susceptible to diseases.
Finally the deciding factor is a good long term storage potential without chemical sprouting inhibitors and without glassy or green leaf blades. And conclusively the onions should have a beautiful skin colour at delivery to present themselves well.

On some points the varieties seem to react differently on the organic growth regime. The differences in yield under organic circumstances were larger than under conventional conditions. And the fact that varieties per location react differently in terms of richness of leaves could be an indication that the varieties possibly deal differently with the availability of organic nitrogen. Although a number of open pollinated varieties were not productive enough, a Balstora can come along reasonably well with the better hybrids.
The time between of farm delivery and consumers' table can for organic onions sometimes rise to three weeks as a result of which strict storage demands have to be met with the onions. At storage between 1-2 °C an average of 17% sprouted as 52% of the onions sprouted at storage between 3-4 °C.

Because it concerns the results of one year some prudence is in order. The coming years the research will be continued so that it will become clear how the varieties will perform through the years and how stable the varieties will be under different growing circumstances. In 2002 14 varieties of onions will be tested in Zeeland and the Flevopolder, among which a number of new ones.

Tabel 1. Results of the onion variety trial at PPO Lelystad (conventional, unsprayed) en OBS Nagele (organic) 2001.

Variety	Seed company	Days of growth needed	Relative yield		Organic, after storage				
			conven-tional	orga-nic	Sprouting day nr	firm-ness	% deliverable	% loss of drying	Remarks 2001
Accent F1	Bejo/Groot&Slot	129	117	112	49	110	91,5	8,7	Little leaf rot
Balstora	Bejo/Groot&Slot	131	98	105	57	103	90,0	5,2	Little leaf rot and downy mildew, rich in leaves
Drago F1	Nickerson	126	97	90	86	109	88,5	7,1	
Durito F1	Royal Sluis	126	103	103	52	102	87,0	13,8	
Hyfort F1	Bejo/Groot&Slot	127	103	103	56	107	90,3	11,5	Nice crop in the field
Hyskin F1	Bejo/Groot&Slot	128	100	100	64	113	91,1	9,8	Little leaf rot, rich in leaves
Hystar F1	Bejo/Groot&Slot	132	102	112	79	107	91,7	6,8	Organic propagated seeds
Jumbo	S&G	132	103	104	69	92	88,7	11,1	Little downy mildew and leaf rot
Opporto	Royal Sluis	129	90	97	57	94	90,0	13,5	
Profit F1	Advanta	128	102	94	61	101	90,9	10,9	Little downy mildew
Robot	Nickerson	133	88	81	61	99	89,1	12,3	Little downy mildew
RS375 F1	Royal Sluis	129	102	112	68	100	90,5	6,1	Little downy mildew and leaf rot, rich in leaves
Stamford F1	S&G	129	97	101	117	99	92,5	11,2	Little leaf rot
Summit F1	Bejo/Groot&Slot	124	100	103	54	106	91,4	11,7	Nice crop in the field
Sunskin F1	S&G	128	103	110	97	99	91,7	8,1	Nice crop in the field, rich in leaves
Paraat F1	Takii Europe	114	98	77	29	88	19,1	9,1	Not for longterm storage
Redbarron F1	Bejo/Groot&Slot	122	98	98	36	88	81,5	10,8	A lot of downy mildew and leaf rot, rich of leaves
Redkite F1	Royal Sluis	120	100	100	31	85	63,6	13,8	A lot of downy mildew and leafrot
Average		127	100= 77 ton/ha	100=52 ton/ha	62	100	84,4	10,1	

Tabel 2. Effect of the cropping system and storage regime on the quality of the onion in 2001/2002.

Location	% loss (respiration.+ drying)	% with outer skin	% healthy	% deliverable	% rot and sprouting	% loss	% sprouting on 5-3	% rot	% sprouting
Lelystad temp 3-4 0C	4,3	93,4	89,9	83,3	1,7	5,8	63,7	1,4	0,2
Nagele temp. 3-4	10,1	93,4	91,1	84,4	1,4	2,3	51,9	1,1	0,2
Teler temp. 1-2	3,3	95,6	90,6	86,1	2,5	1,5	17,0	2,8	-0,1
Average	*5,9*	*94,1*	*90,5*	*84,6*	*1,9*	*3,2*	*44,2*	*1,8*	*0,1*