

Seed treatment of leek to control onion thrips (*Thrips tabaci* Lind.)

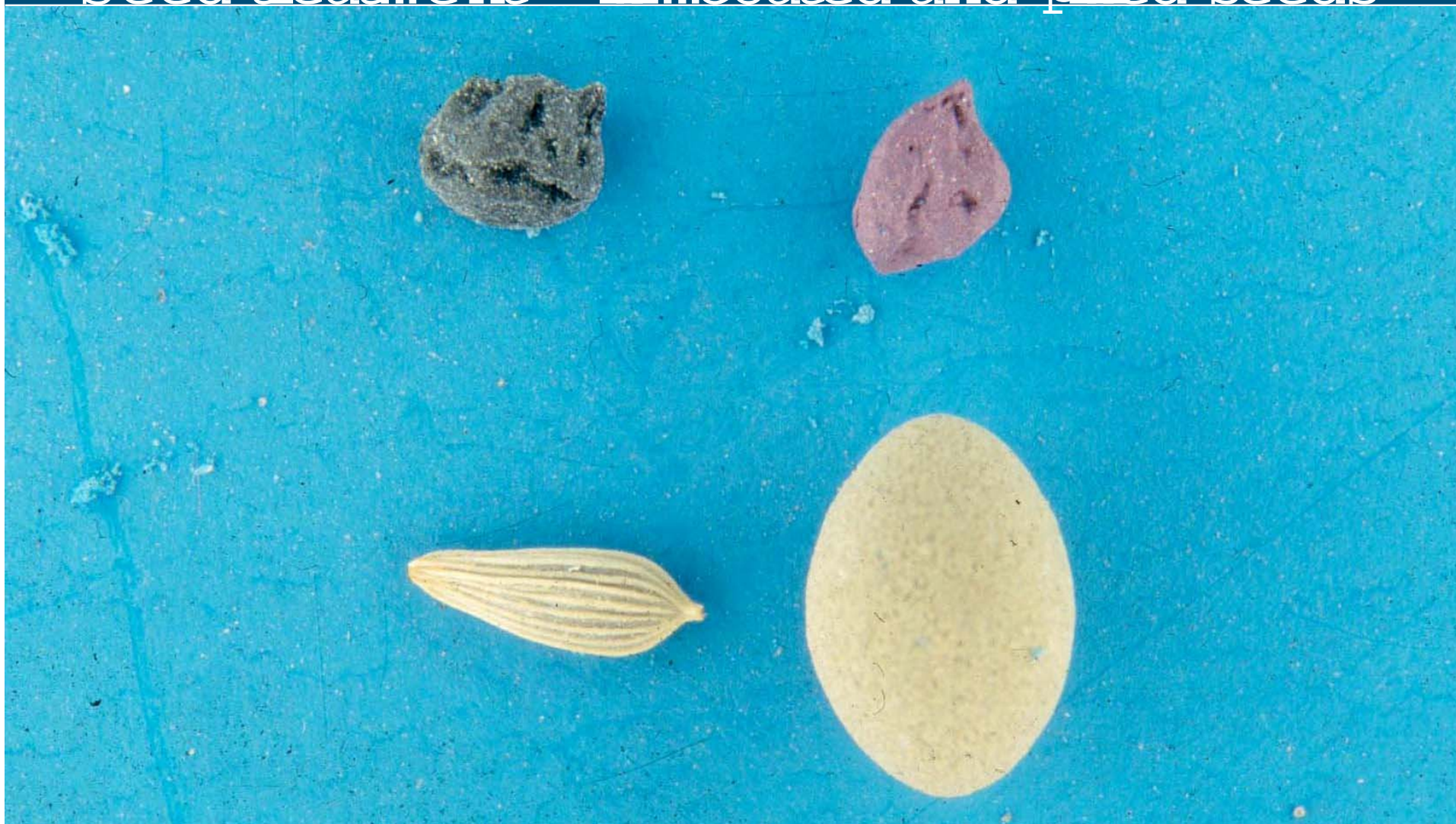
Hilfred Huiting & Albert Ester

PPO-agv Lelystad, The Netherlands



APPLIED PLANT RESEARCH
WAGENINGEN UR

Seed treatment – filmcoated and piled seeds



Thrips and damage



Thrips damage, untreated and seedcoating



Insecticides and rates (a.i./unit of seed) in leek

Insecticide	Formulation	1994	1995	1996
Benfuracarb	40 WP	-	20	-
Diflubenzuron	25 WP	25	-	-
		37.5	-	-
Fipronil	500 FS	-	37.5	-
		50	50	50
		75	-	-
Imidacloprid	70% WS	42	-	-
		56	56	56
Methiocarb	500 FS	50	-	-
		75	-	-
Teflubenzuron	150 g/l	-	18	-
		-	27	-



Index of thrips damage on leek plants



Average numbers of larval and adult *Thrips tabaci* per leek plant

10, 16 and 19 weeks after sowing the filmcoated seeds at Breda in 1995

Insecticide	Rate (g a.i.)	10		16		19	
		immature	adults	immature	adults	immature	adults
Untreated	0	1.2	0.8	53	8.3	34	6.1
Fipronil	37.5	0.2	0.0	12	5.3	21	3.1
Fipronil	50	0.0	0.0	4	2.0	6	2.1
imidacprid	56	0.2	0.3	19	5.6	12	3.5
LSD ($\alpha = 0.05$)		0.54	0.22	26.3	ns	30.1	ns



Thrips damage index and average number of *Thrips tabaci* per leek plant

11, 18 and 21 weeks after sowing, average of eight field trials in 1995

Insecticide	Rate (g a.i.)	11		18		21	
		Index	No.	Index	No.	Index	No.
Untreated (-coat)	0	1.7	1.4	5.6	20	5.6	24
Untreated (+ coat)	0	1.8	2.3	6.0	30	5.5	22
Fipronil	37.5	1.0	0.1	2.9	10	4.0	19
Fipronil	50	1.0	0.1	2.6	8	3.6	14
LSD ($\alpha = 0.05$)		0.44	1.63	0.83	9.3	0.57	6.3



Average number of larval *Thrips tabaci* per plant and thrips damage index

1, 2 and 3 weeks after transplanting in 1996

Insecticides	Rate (g a.i.)	1		2		3	
		No.	Index	No.	Index	No.	Index
Untreated	0	9.9	5.0	17.7	5.9	18.8	4.8
Fipronil	50	0.4	1.4	5.6	2.6	7.2	2.5
Imidacloprid	56	0.4	1.7	6.2	3.2	12.1	3.5
LSD ($\alpha = 0.05$)		4.1	0.97	8.8	1.34	6.2	3.6



Laboratory germination and field emergence of film coated winter leek seed (1995)

Insecticide	Rate (g a.i.)	% normal germination in sand days after sowing			% field emergence weeks after sowing	
		12	16	21	3	7
Untreated	0	54.8	84.8	89.5	77.8	82.0
Fipronil	37.5	47.0	83.3	91.5	74.6	78.6
Fipronil	50	38.0	82.3	89.0	77.5	83.1
imidacloprid	56	35.3	78.0	86.0	58.5	71.6
LSD ($\alpha = 0.05$)		11.8	6.2	5.6	6.4	4.0



Conclusion

Winter leek crop

- Filmcoating seeds with fipronil and imidacloprid showed protection until at least 19 weeks after direct sowing
- Plants of filmcoated seeds were protected until 3 weeks after transplanting
- Imidacloprid showed some phytotoxicity, by delay in germination



Attack by onion fly larvae (*Delia antiqua*) in leek



Attack by leek moth (*Acrolepiopsis assectella*)



Seed treatment

Untreated seeds



General conclusion

- Filmcoating seeds with fipronil 50 g. a.i. per 250,000 seeds protected the plants against:
 - Onion fly (100%)
 - onion thrips until 3 weeks after transplanting (August) or until 19 weeks after direct sowing
 - partial protection against the leek moth, without any phytotoxicity
- Thrips population is at a very low level, only two spray applications are recommended



Thank you for your attention

© Wageningen UR



APPLIED PLANT RESEARCH
WAGENINGEN UR