



Pear Growing Techniques in The Netherlands

Gerard Poldervaart, AllroundFruit

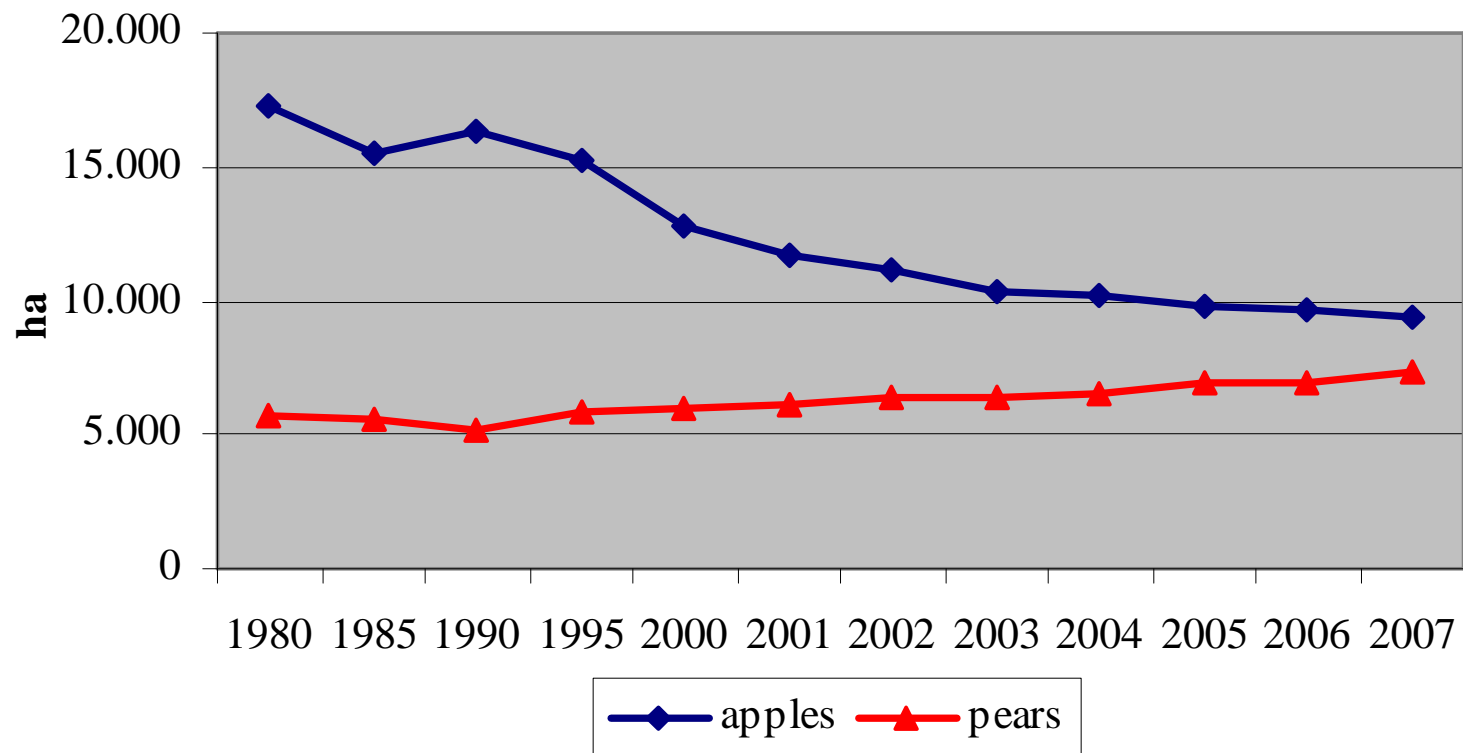




Importance of pears in NL



Acreage of apples and pears in NL



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Pear growing in NL



Planting trends - NL:

	<u>1995</u>	<u>2007</u>	
Apples	15,298 ha	9,380 ha	- 5,918 ha (-39%)
Pears	5,885 ha	7,300 ha	+1,415 ha (+24%)
Pear production	150,000	260,000 (tonnes)	+ 73%
Conference production		200,000 (tonnes)	= 77 % of total

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Targets



Fruitsize and skinquality Conference

Targets:

- High production and good size:
60 tonnes above 60 mm
- Bronze-coloured,
but not russeted pears



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Skin-quality





Pear-growing



New orchards:

➤ 90 % Conference

➤ 90-95 % Quince MC
(rootstock)



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Pear-growing



Planting-system / density :

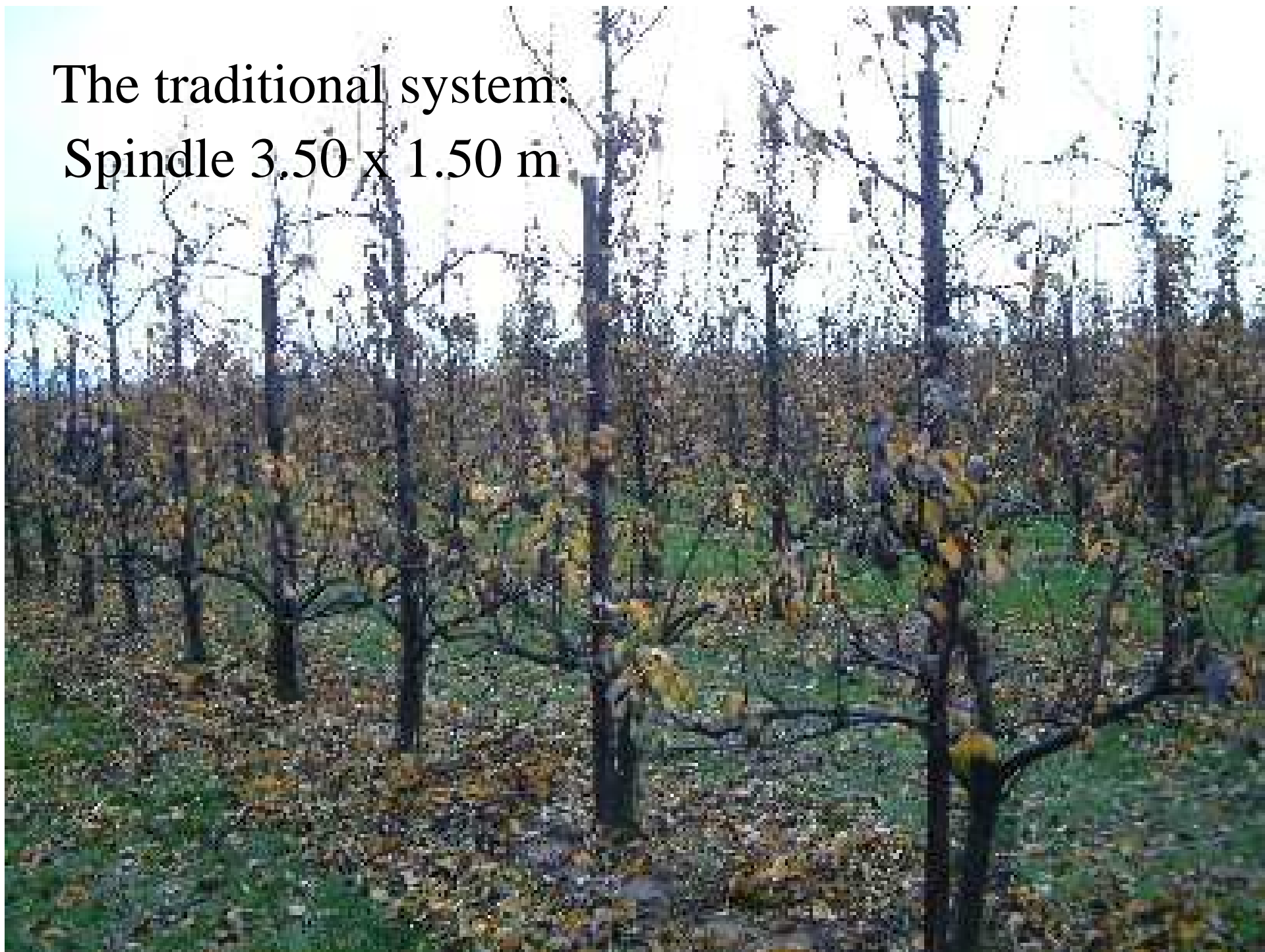
- 3,000 – 8,000 trees per ha.
- Different systems: Spindle, V-system, Fruitwall, Mini-spindle, Superspindle etc.



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The traditional system:
Spindle 3.50 x 1.50 m



Spindle 3.25 x 1.25 m.
supported by wires



Spindle with 2 central leaders



V-system 3.25 x 1.00 m.
supported with concrete posts



V-system 3.25 x 1.00 m.
supported with concrete posts.



FruitWall 2.50 x 0.60 m.
Trees with 2 central leaders
(Bi – Baum)



FruitWall 2.50 x 0.60 m.
Trees with 2 central leaders
(Bi – Baum)





Pear-growing



Target Production: (Tonnes/Hectare)

	<u>Apples</u>	<u>Pears</u>
	3.00 x 1.00 m.	3.25 x 1.00 m.
2nd year	25 tonnes	15 tonnes
3rd year	35	25
4th year	45	35
5th year	45	45

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Pear-growing



Growth regulators:

Reducing growth: Root-pruning
Stem-cutting

Improving Fruitset: (GA3 or) GA_{4/7}

Thinning: Nothing available



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Pear-growing

Root-pruning:

- Done March or June
- Searching for optimum growth-level
- Too strong a pruning:
= smaller fruits



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Growth Regulation



Influence of strong stem-cutting in 2004 on Production and fruitsize of Conference in 2005

Source: PPO-Fruit-Randwijk

	# fruits per tree	kg/ Tree	Fruitweight (grams)
Root-pruning	127 a	25.0	198 b
Stem-cutting	143 b	23.3	163 a

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Irrigation



Influence of Irrigation in dry year (2001) on fruitsize of Conference.

Source: :PPO-Fruit-Randwijk

	# fruits per tree	Tonnes per ha	Fruitweight (gram)
No irrigation	49.5	37.0	246
Drip Irrigation (max 45 kPa)	48.1	36.5	250
Overhead Sprinklers + Drip Irrigation (max 20 kPa)	53.6	<u>40.8</u>	<u>256</u>

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Thinning Conference



1	Not treated	
2	Hand-thinning	2/7
5	2x ATS (1,2%) at 20 and 50% open flowers	9/4 and 12/4
8	150 ppm BA at 10 mm fruitsize	27/4
9	150 ppm BA + 10 ppm NAA at 10 mm	27/4
11	200 ppm ethefon full bloom	14/4

150 ppm BA = 7,5 liter MaxCel/ha

10 ppm NAA = 125 ml Obsthormoon/ha

200 ppm ethefon = 420 ml Ethrel A/ha

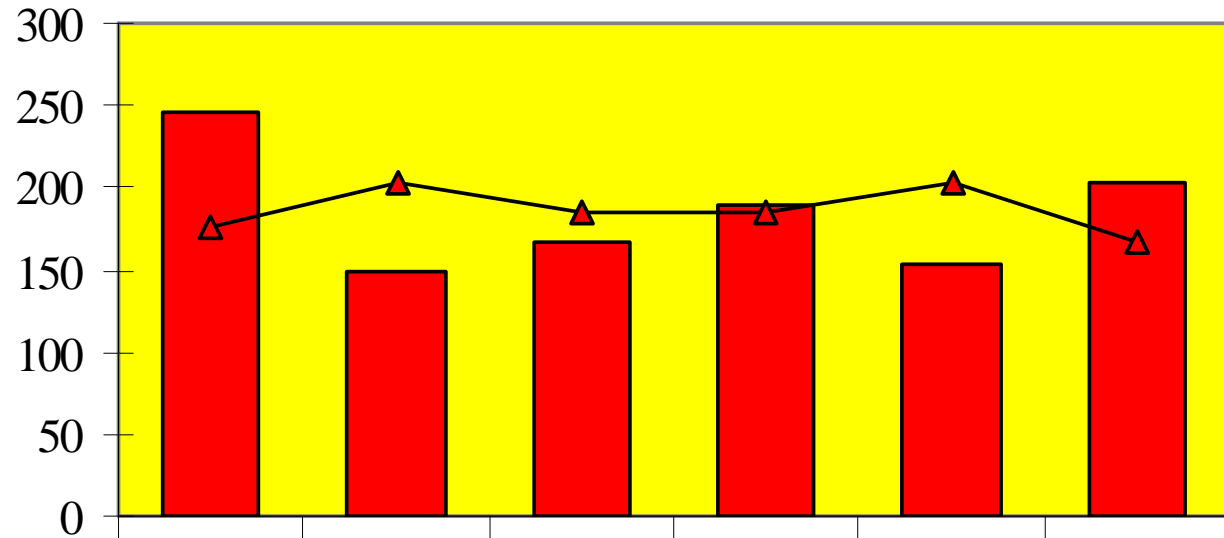
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Thinning Conference



	control	hand-thinning	2 x ATS	BA	BA + NAA	ethefon
Fruits per 100 buds	246	148	167	190	153	203
average fruit weight (g)	176	202	186	186	202	167

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Note:

Strong Rusetting affect
on Conference after
ATS treatments !!!



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Influencing Fruitsize



Water-supply;

- Especially during flowering and before picking
- Growing interest for Fertigation

Nutrition

- High Potassium and Nitrogen fertilisation

Platina;

- In trials, achieved 5-10 grams more fruitweight

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Potassium fertilisation



Influence of potassium-fertilisation on Production and
Fruitsize of Conference.

Source: PPO-Fruit-Randwijk

	Tonnes /ha 2003	# fruits per tree	Fruitweight (gram)
No K₂O	29.8	47	212
High K₂O	41.9	67	210

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Mulching
with
Compost





Skin-Quality



Skin-Quality is influenced by:

- Yearly differences / influences
- Weather influences (cold / frost)
- Irregular growth, esp. at time of cell-devision
- Drought during flowering-period (rootpruning!)
- Insects: Pear-psylla, ants, mites
- Rootstock

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New rootstock for Conference ?



Trial Conference
PPO-Fruit - NL

Planted 1999

Results 2000-2005
(2nd - 7th year)

(*Kwee* = *Quince*)



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Kwee
Eline®

Kwee
MC

C





Kwee MC



Kwee Eline



Kwee MC



Kwee Eline



New rootstock for Conference ?



Properties Quince *Eline* versus Quince MC

Trial PPO-Fruit – Randwijk

- Little bit stronger growth
- 10 % **more fruits** per tree (n.s.)
- 6 % **higher production per tree** (n.s.)
- 7 gram lower fruitweight (n.s.)
- Little better production efficiency (n.s.)



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Thank you for your attention



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