

Rootstocks from Genus *Cydonia* sp. and their Incompatability with Chosen New Czech Pear Varieties

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Abstract: Incompatability between 12 chosen pear varieties and rootstocks from genus *Cydonia* sp. and *Pyrus* sp. were investigated. More than 2,500 different rootstocks were budded in one year in two year cycle. Observation characteristics were budd union success, diameter one year old stems 100 mm above budd union, height one year old stems and grow index which were calculated from the numbers diameter and height one year old stems. The best combinations with quince rootstocks were varieties 'Bohemica', 'Dicolor', 'Vonka', 'Jizera' and 'Morava' after one year observation.

Key words: incompatability, rootstock, pear, quince, *Cydonia* sp., *Pyrus* sp.

Introduction

Plant density is closely correlated to training system and pruning technique. The more density orchards has 2,000 – 4,000 trees/ha, in pear can be largely be ascribed to the use of quince rootstocks (Sansavini, Musacchi, 2000). In Czech is still more popular rootstocks from genus *Cydonia* sp., which are the dwarfing effects for growth pears orchards.

The incompatability between rootstock and scion is the biggest problem in fruit nurseries by propagation young pear tree grafted or budded on quince rootstocks. The Czech Republic is one of the country, which have many new very interesting pear varieties for fruit growers. We know results after budded at some combinations, but we haven't this information about new pear varieties.

The aim of the work are the evaluated grow characteristics and incompatibility between rootstocks from genus *Cydonia sp.* and pears varieties. This results were confront with pears seedling rootstock.

Matherial and Methods

Twelve choosen pear varieties were budded in two year cycle on follow rootstocks from genus *Cydonia sp.* - '*Quince MA*', '*Quince MC*', '*Quince Adams*', '*Quince S1*', '*Quince BA 29*', '*K-TE-E*' (Czech selection) and *Pyrus sp.* - '*H-TE-1*' (pear seedling) as control rootstock..

Pear varieties were devided to four categories:

- Variets with good compatibility with quince rootstocks '*Konference*'.
- Variets with bad compatibility with quince rootstocks '*Boscova*'.
- Variets with partly known compatability which are considered as good '*Amfora*', '*Bohemica*', '*Erika*', '*Dicolor*'.
- Variets with unknown compatibility with quince rootstocks '*Lebosca*', '*Vonka*', '*Karina*', '*Jizera*', '*Morava*', '*Beta*'.

Rootstocks Quince MA, MC and Adams were bought from Netherland, S1 from Research institute of pomology and floriculture Skierniewice - Poland, BA 29 and K-TE-E from Breeding station Techobuzice.

The rootstocks were planted in March 2001, 2002 to spacing 1.5m x 0.3m. During vegetation did was hoeing, weeding, fertilizate, chemical spraying. The budding was in August 2001, 2002 by method T-budding and binded budd to rootstocks was with „Okulette 30“. Aftercare was same as usualy in fruit nurseries. Rootstocks were cutted above budd next year in the spring, March. In the second year was made agrotechnical aftercare. Young Stems were holded to the bamboo picket.

The observation charakteristics are:

- Percent of survival after budding – valuation after winter cutting, how many budd are growth. This rate is in percent.
- Valuation of diameter one year old stems 100 mm above budd union.
- Valuation height one year old stems after vegetative grow.
- Grow index were calculated from numbers of diameter and heigh one year old stems (UPOV, 1992).

Results and Discusions

I have just only one year old results at this time, the next results will be at the autumn this year.

Quince rootstocks had the lowest budd union success with control variet '*Boscova*' (17%), the next control variet '*Konference*' had (85%) budd union success. Variets '*Lebosca*', '*Amfora*' and '*Karina*' follow with (70-80%). The highest level (more than 90%) had '*Bohemica*', '*Dicolor*', '*Vonka*', '*Jizera*' and '*Morava*'.

The results budd union success at pear seedling were from 87 – 100%, without different at all variets.

Parameter Height one year old stems has following results:

The best results at group quince are with variets '*Bohemica*', '*Dicolor*', '*Vonka*', '*Jizera*' and '*Morava*', where heigh is abowe 1,00m.

Next group is with heigh from 0,81-1,00m, where are variets '*Konference*', '*Amfora*', '*Erika*' and '*Karina*'.

The third group of variets as '*Boscova*', '*Lebosca*' and '*Beta*' with heigh from 0,41-0,80m.

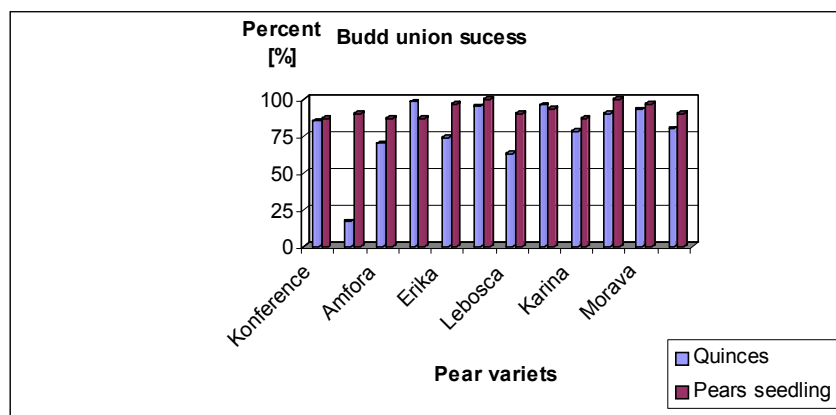
Table 1. Succeeded budding pears variets on quince rootstocks and pear seedling in percent (%)

Pears variety	Konference	Boscova	Amfora	Bohemica	Erika	Dicolor	Lebosca	Vonka	Karina	Jizera	Morava	Beta
Rootstock												
Quinces	85	17	70	98	74	95	63	96	78	90	93	80
Pear seedling	87	90	87	87	97	100	90	93	87	100	97	90

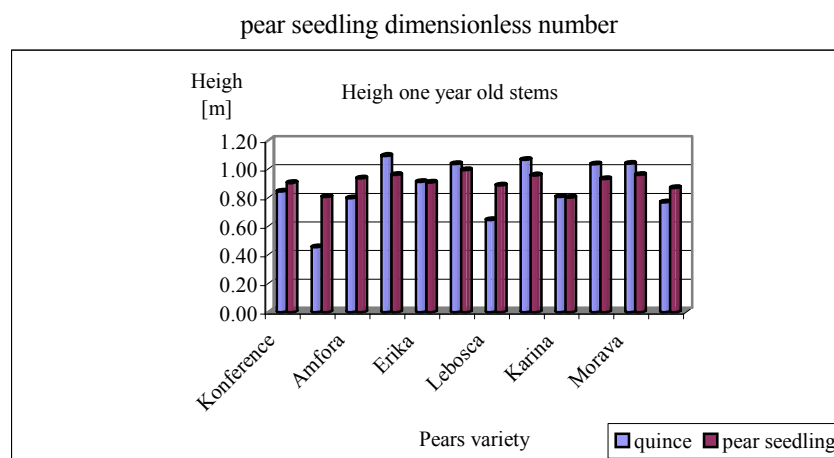
Table 2. Heigh one year old stems (m)

Pears variety	Konference	Boscova	Amfora	Bohemica	Erika	Dicolor	Lebosca	Vonka	Karina	Jizera	Morava	Beta
Rootstock												
Pears seedling	0,90	0,81	0,94	0,96	0,91	0,99	0,89	0,96	0,80	0,93	0,96	0,87
Quinces	0,84	0,45	0,80	1,09	0,91	1,04	0,65	1,07	0,81	1,03	1,04	0,77

Graph 1. Succeeded budding pears variets on quince rootstocks and pear seedling



Graph 2. Check growing pears variets on quince rootstocks and



Conclusion

The best combinations with quince rootstocks were after one year observation varieties '*Bohemica*', '*Dicolor*', '*Vonka*', '*Jizera*' and '*Morava*'. This varieties had the best budd union success, the highest and strongest one year old stems heigh were above 1,00m.

The middle group contains varieties '*Amfora*', '*Erika*', '*Karina*' and control variet '*Konference*'. The third group with varieties '*Boscova*', '*Lebosca*' and '*Beta*' looks bad with combination with quince rootstocks. Results of budd union success are to 50%, with low high and low strong one year old stems, the the heigh were between 0,41 – 0,80m.

References

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PODLOGE RODA *Cydonia* sp. I NJIHOVA INKOMPATIBILNOST SA NOVIM SORTAMA ČEŠKE KRUŠKE

- originalni naučni rad -

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Rezime

Inkompatibilnost između 12 odabranih vrsta kruške i podloga roda *Cydonia* sp. *Pyrus* sp. su predmet ovog ispitivanja. Više od 2,500 različitih podloga je kalemljeno u jedno- ili dvogodišnjem ciklusu. Postignute karakteristike bile su ujednačena kalemljenja, prečnik stabla iznad kalemljenja 100 mm, stabla stara jednu godinu i indeks rasta, koji su izračunati na osnovu prečnika i visine jednogodišnjih stabla. Posle jedne godine ispitivanja, najbolje kombinacije sa podlogama dunje dale su vrste 'Bohemica', 'Dicolor', 'Vonka', 'Jizera' i 'Morava'.