sunlight intensity than in shaded areas. In this orchard, although tree heights were approximately the same, overall tree form and shape were different (Fig. 2). Thus, overall tree form may be a possible factor for the observed differences in ovipositional activity of cicada in standard versus spur type trees.

The data support the conclusion that in the presence of a "choice" of apple varieties, there was a statistically consistent trend of ovipositional preference for such varieties as 'Melrose' and 'Hi Early Delicious'. On the other hand, in the same orchard, such spur types as 'Wayne Spur', 'Hardi Spur' and 'Wellspur Delicious' remained relatively free from ovipositional activity by the periodical cicada. Consequently, when infestations of periodical cicada occur in apple growing areas, growers should apply protective measures, particularly to young plantings of the more susceptible varieties and the spur types would be less likely to incur severe injury from the cicadas.

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Inheritance of Pear Decline Resistance

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The present knowledge of pear decline disease indicates that phloem necrosis occurs in susceptible rootstocks of the bud union as a result of a mycoplasma whose vector is the insect pear psylla (*Psylla pyricola* Foers.) (1). Williams, et al. (3) showed that, based on phloem necrosis following psylla feeding, *Pyrus communis* L., *P. betulaefolia* Bunge, *P. calleryana* Dcne., *P. ussuriensis* Max. cv. Chieh Li and *P. pyrifolia* Mak. cv. Japanese Golden Russet were quite resistant to decline, while wild *P. pyrifolia* and cultivars 'Hawaii', 'Nijiseiki' and 'Mikado', and wild *P. ussuriensis* were susceptible. This is in general agreement with long term field studies of pear decline (2).

The present study was initiated in 1968 to study rootstocks of resistant and susceptible parents and those from resistant x susceptible crosses. All trees were grafted to 'Bartlett' and planted at the Lewis-Brown Horticulture Farm, Corvallis. In most cases 14 to 32 seedlings of each cross were used as rootstocks.

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Data of Table 1 show that all of the progenies of resistant parents were resistant, though not to the same degree. *P. betulaefolia, P. calleryana,* and several crosses of resistant *P. communis* showed relatively low percentages of severe decline. Crosses of 'Chieh Li' *(P. ussuriensis)* and 'Japanese Golden Russet' *(P. pyrifolia)* gave 75% healthy trees even though unselected seedlings of those 2 species are usually susceptible. Crosses of resistant x susceptible types were intermediate in response, whether or not the resistant parent was *P. communis,* e.g. 'Old Home' or *P. pyrifolia.*

The lack of complete resistance in resistant crosses and the gradation from healthy to severe decline in most crosses indicates a complex inheritance involving several genes. The fact that all resistant crosses produced a high proportion of resistant offspring indicates that crosses of species and cultivars known to be resistant should result in more uniformly resistant offspring. *P. betulaefolia* is the most resistant of all tested species. Open pollinated seed for rootstocks should be avoided if the probable pollen parent is susceptible.

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Table 1. Inheritance of pear decline resistance by different *Pyrus* rootstocks.

Rootstock type	North West decline rating: Healthy 1 & 2	Poor vigor 3	Severe decline 4 & 5
		Percent	
Resistant crosses			
P. bet. x P. bet.	99	0	1
P. call. x P. call.	81	15	5
P. com. x P. com.:			
Bartlett seedling	67	23	10
Old Home x Farmingdale	82	14	4
Chieh Li x Japanese Golden Russet	75	0	25
Resistant x susceptible crosses			
Japanese Golden Russet x Mikado	50	11	39
Japanese Golden Russet x Hawaii	46	8	38
Old Home x Nijiseiki	42	26	32
Susceptible crosses			
P. pyrifolia x P. pyrifolia (Serotina)	18	21	61

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