

Table 4 List of varieties in this study with habitat and pedigree information

Accession number	Variety name	Type of breed	Location
C18-1	Golden Delicious	Golden Delicious	Muping, Yantai
C18-2	Starkrimson (Netherlands)	Delicious short spur	Jiaonan, Qingdao
C18-3	Pingyin Spur	Delicious	Pingyin, Jinan
C18-4	Kangtun Spu	Delicious	Muping, Yantai
C18-5	Xiyanghong	Delicious	Yantai Institute of Agricultural Sciences
C18-6	Qingdao1	Delicious	Daze Mountain, Yantai
C18-7	Akifu 5	Fuji (Yuanshuai×Guoguang)	Muping, Yantai
C18-8	Akifu 1	Fuji	Laixi, Qingdao
C18-9	Nagafu 7	Fuji	Rongcheng, Weihai
C18-10	Akifu 2	Fuji	Rongcheng, Weihai
C18-11	Nagafu 2	Fuji	Rongcheng, Weihai
C18-12	Yanfu 5	Fuji	Muping, Yantai
C18-13-1	Changhong-1	Fuji	Pingyuan, Dezhou
C18-13-2	Changhong-2	Fuji	Jimo, Qingdao
C18-14	Orin	Golden Delicious×Indo	Jimo, Qingdao
C18-15	Indo	White Winter Pearmain × ?	Jimo, Qingdao
C18-16	Geneva Early	Quinte×Julyred	Qixia, Yantai
C18-17	Fujiki 1 (Nanbusakigake)	Unknown	Linyi, Shandong
C18-18	RallsJanet	Unknown	Linyi, Shandong
C18-19	Shinsekai	Fuji×akagi	Linyi, Shandong
C18-20	Sansa	Gala×Akane	Tai'an, Shandong
C18-21	Jonagold	Golden Delicious×Jonathan	Tai'an, Shandong
C18-22	Wangshi	Fuji	Tai'an, Shandong
C18-23	Violetred No.1	Unknown	Tai'an, Shandong
C18-24	Taishan early	Unknown	Tai'an, Shandong
C18-25	RallsJanet	Unknown	Tai'an, Shandong
C18-26	Red General Fuji	Fuji	Liaocheng, Shandong
C18-27	Jonathan	Esopus Spitzenburg	Linyi, Shandong
C18-28	Royal Gala	Kidd's Orange Red×Golden Delicious	Linyi, Shandong
C18-29	Meiguo 8	NY543	Linyi, Shandong
C18-30	Pink Lady	Golden Delicious	Tai'an, Shandong