

中国苹果品种

Apple Varieties in China

丛佩华◎主编

Chief Editor Cong Peihua



中国农业出版社
China Agriculture Press

中国苹果品种

Apple Varieties in China

丛佩华 主编

Chief Editor Cong Peihua



中国农业出版社
China Agriculture Press

图书在版编目(CIP)数据

中国苹果品种：汉、英/丛佩华主编. —北京：
中国农业出版社，2015.10

ISBN 978-7-109-20880-3

I. ①中… II. ①丛… III. ①苹果—品种—中国—
汉、英 IV. ①S661.1

中国版本图书馆CIP数据核字(2015)第207540号

中国农业出版社出版

(北京市朝阳区麦子店街18号楼)

(邮政编码100125)

责任编辑 张 利 黄 宇

北京中科印刷有限公司印刷 新华书店北京发行所发行

2015年11月第1版 2015年11月北京第1次印刷

开本：889mm × 1194mm 1/16 印张：11

字数：305千字

定价：200.00元

(凡本版图书出现印刷、装订错误，请向出版社发行部调换)

《中国苹果品种》编委会

The Editorial Committee

主 编 丛佩华

Chief Editor

Cong Peihua

副 主 编 韩振海 伊 凯 赵政阳 过国南
马锋旺 戴洪义

Vice-Editors

Han Zhenhai, Yi Kai, Zhao Zhengyang, Guo Guonan,
Ma Fengwang, Dai Hongyi

编 委 (按姓氏笔画排序)

马锋旺	王 昆	王 强	王大江
王冬梅	丛佩华	过国南	伊 凯
刘延杰	刘 志	闫忠业	李翠英
杨凤秋	杨廷桢	邹养军	张玉刚
张守江	张彩霞	张新忠	武月妮
赵永波	赵政阳	侯鸿敏	高 华
高 源	康国栋	阎振立	韩振海
管清美	戴洪义		

Members

Ma Fengwang, Wang kun, Wang Qiang, Wang Dajiang,
Wang Dongmei, Cong Peihua, Guo Guonan,
Yi Kai, Liu Yanjie, Liu Zhi, Yan Zhongye, Li Cuiying,
Yang Fengqiu, Yang Tingzhen, Zou Yangjun,
Zhang Yugang, Zhang Shoujiang, Zhang Caixia,
Zhang Xinzhong, Wu Yueni, Zhao Yongbo,
Zhao Zhengyang, Hou Hongmin, Gao Hua, Gao Yuan,
Kang Guodong, Yan Zhenli, Han Zhenhai,
Guan Qingmei, Dai Hongyi

序



苹果作为世界四大水果之一，地域分布极为广泛。我国作为苹果的发源地之一，具有极为丰富的苹果种质资源。随着苹果产业的不断发展，我国现已拥有渤海湾、黄土高原、黄河故道和西南冷凉高地四大苹果产区，种植品种涉及早、中、晚熟鲜食品种及加工品种。

近10年，苹果产业进入快速发展期，2005年统计苹果栽培面积189万 hm^2 ，产量2 401.1万t，2013年苹果栽培面积上升到227.2万 hm^2 ，产量上升到3 968.3万t。苹果产业已成为涉及一、二、三产业的综合产业，对生态环境、农民增收、企业增效等均有贡献。

世界苹果育种的历史已经百年有余，一个世纪以来，育种工作者对苹果新品种的选育和发展贡献良多。纵观全球苹果品种发展格局，国外栽植最为广泛的苹果品种除金冠、元帅、旭等传统品种外，人工选育的富士、嘎拉、乔纳金、粉红女士等品种近年也有较快发展。受苹果消费市场多元化需求的影响，国内外苹果优新品种不断涌现，自20世纪80年代富士苹果引进之后，我国还陆续引进了乔纳金、嘎拉等许多新品种进行栽培。近年来，我国的苹果新品种选育也有一定突破，育成的寒富、秦阳、华硕等多个新品种在各大苹果产区均有不俗的表现。

为了让国内外同行对中国现有的栽培苹果品种有所了解，国家苹果产业技术体系7位岗位专家历时3年，筛选现有栽培品种，组织团队成员对选定的144个品种进行统一标准拍摄，并组织编写《中国苹果品种》。该书文字简洁，内容丰富，且每个品种均附有中英文介绍，方便国内外同行查阅，为国内外从事苹果科研及生产相关人员提供了一本很好的参考书。

束怀瑞

2015年6月于山东泰安



PREFACE

Apple (*Malus domestica*) is one of the top four most important fruit trees in the world and is widely cultivated in a variety of geological distribution. China is one of the most important places in which apple was originated and has abundant apple germplasm resources. As the continuous development of apple industry, China has had four main regions of apple production, that is, the Bohai Bay region, the Loess Plateau region in the northwest, the Old Yellow River region, and cold highland region in the Southwest. The varieties cultivated not only include early, mid and late-ripening fresh eating apples but processing apples as well.

Apple industry in China has entered a rapid developmental period in recent 10 years. The apple cultivation area was increased from 1.89 million hectares in 2005 to 2.27 million hectares in 2013, and the total production was increased from 24.011 million tons in 2005 to 39.683 million tons in 2013. Apple industry has become a comprehensive industry including primary, secondary and tertiary industries has contributed a lot to the ecological environment, farmer income and enterprise income.

Apple breeding in the world commenced a century ago. Apple breeders have contributed a lot to the apple industry for breeding and extending new varieties in the world. At present, the most widely cultivated apple varieties in the world include not only the conventional varieties such as Golden Delicious, Delicious and McIntosh, but artificially bred varieties such as Fuji, Gala, Jonagold and Pink Lady as well. The trend of apple breeding is mainly determined by the demands of consumers and markets. Fuji apple was introduced into China in the early 1980s. Many other varieties such as Jonagold and Gala were introduced into China afterwards. Apple breeders in China have made a profound progress in breeding new apple varieties in recent years, such as Hanfu, Qinyang, Huashuo evidently performing well in different regions of apple production.

For the introducing the currently cultivated apple varieties in China to the apple breeders and growers in the world, seven apple breeders and their team members of CARS have taken three years to edit the book of Chinese Apple Varieties, in which 144 varieties were described with beautiful pictures and clarified writings, and as well as double languages. I believe that this book should be a nice reference both for the professionals and the amateurs.

Shu Huairui
June, 2015

前言



苹果是世界上栽培最为普遍的落叶果树之一，最初主要分布于欧洲、亚洲和北美洲，经过2 000多年的驯化和品种选育，现在五大洲都有苹果栽培。中国是苹果属植物的发源地之一，经过长期的自然选择和人工选育，现已拥有极为丰富的苹果种质资源。

近年来，随着我国对苹果产业发展的重视，苹果栽培面积趋于稳定，产量稳步增长，栽培区域逐步集中，品种结构有所改善，产业化水平不断提高。从分布来看，我国苹果生产主要集中在环渤海湾、西北黄土高原、黄河故道和西南冷凉高地四大产区。据农业部统计，2013年我国苹果栽培面积和产量分别达到227.2万 hm^2 和3 968.3万t，居世界首位。近年来，我国苹果新品种选育成绩斐然，相继育成了以秦阳、华硕、寒富等为代表的300余个新品种，在我国苹果品种的更新换代和结构调整中起到了重要作用。目前，虽然红富士占据了苹果种植的主要地位，从国外引进的一些新品种，如乔纳金、嘎拉系、藤牧1号、美八等也有一定的发展。

为促进我国苹果产业的发展，让国内外从事苹果育种研究的同行对我国目前的栽培苹果品种有所了解，国家苹果产业技术体系育种与资源利用研究室各专家历时3年，采用一致的拍摄标准，对144个苹果品种进行了拍摄，并组织编写了《中国苹果品种》。每个品种分别记述了来源或选育单位、主要形态特征和生物学特性以及品质特性。本书比较全面地反映了中国目前的苹果栽培品种类型以及近年来的选育成就，可以为国内外苹果科研、育种及生产方面相关人员提供一定的参考。

本书编写过程中，得到了国家苹果产业技术体系各位同行的诸多支持，在此一并致谢。由于编者业务水平和经验有限，收集的资料不够全面，书稿整理过程中难免存在疏漏，敬请读者批评指正。

编著者

2015年6月

FOREWORD



Apple is one of the most popular deciduous fruit trees cultured in the world. It is originally distributed in Europe, Asia and North America. With more than 2 000 years of natural domestication and breeding improvement, apple has been widely grown in five continents of the world. China is one of the origin places for *Malus* species and has abundant apple germplasm resources through long-term natural selection and artificial breeding.

In recent years, great attention has been paid to the development of apple industry in China. Apple growing areas tend to be stabile and growing regions are gradually concentrated. Total annual production is increased steadily, variety compositions are continuously optimized, and the level of industrialization is continuously increased as well. Apple production in China is mainly distributed in four regions, that is, Bohai Gulf Area, Northwest Loess Plateau, Ancient Cannel Region of Yellow River and Southwest Cold Highland. According to the statistics of China Ministry of Agriculture, the apple production area reached 2.272 million hectares, with a total annual production of 39.683 million tons in 2013, therefore, China is the top country of apple production in the world. Great achievements have been made in apple breeding in China and more than 300 new varieties and strains have been selected such as Qinyang, Huashuo and Hanfu, in last several decades, playing an important role in upgrading apple varieties. Although Fuji is still the dominating variety in China at present, some new varieties introduced from abroad also has got a certain development, such as Jonagold, Gala, MATO, Meiba and so on.

In order to promote the development of apple industry and give a chance to the worldwide apple breeders to know apple varieties cultivated in China, Chinese apple breeders from Breeding and Resource Division of China Apple Industrial Technology System have taken three years to edit and publish the book *Apple Varieties in China*, in which 144 apple varieties have been described with photos, origin, breeding organization, main morphological characters, biological characteristics and quality traits of each variety using unified standard. This book in fact is a brief introduction of the current apple varieties and breeding achievements in China. It of course could be a good reference for the people working in apple industry at home and abroad.

We are very grateful for receiving a lot of support and assistance from the colleagues of China Apple Industrial Technology System during the course of compiling the book. Criticisms and rectifications from the readers are much appreciated for the shortcomings of the book due to our limited experience.

Editors
June, 2015



目录 CONTENTS

序

PREFACE

前言

FOREWORD

第一部分 中国苹果概况 General Situation of Apple Industry in China 1

一、中国苹果栽培历史悠久 A Long History of Apple Cultivation in China 2

二、中国苹果种质资源丰富 China is Rich in Apple Germplasm 2

三、中国是苹果生产大国 China Is the Largest Apple Producing Country 3

四、中国苹果栽培区域与品种结构 Planting Distribution and Layout of Apples in China 4

(一) 分布区域广泛 Extensive Distribution 4

(二) 中国苹果品种结构 Variety Structure of China Apple 5

第二部分 中国苹果栽培品种 Cultivated Varieties of Apple in China 7

一、国内选育品种 Domestic Breeding Varieties 8

- | | | | |
|-------------------|----|-----------------------|----|
| 1. 昌红 Changhong | 8 | 18. 华帅 Huashuai | 27 |
| 2. 岱绿 Dailü | 9 | 19. 华硕 Huashuo | 28 |
| 3. 丹霞 Danxia | 10 | 20. 华玉 Huayu | 29 |
| 4. 伏翠 Fucui | 11 | 21. 华月 Huayue | 30 |
| 5. 伏帅 Fushuai | 12 | 22. 鸡冠 Jiguan | 31 |
| 6. 福丽 Fuli | 13 | 23. 金红 Jinhong | 32 |
| 7. 福艳 Fuyan | 14 | 24. 金世纪 Jinshiji | 33 |
| 8. 福早红 Fuzao hong | 15 | 25. 锦秀红 Jinxiuhong | 34 |
| 9. 寒富 Hanfu | 16 | 26. 晋富1 Jinfu 1 | 35 |
| 10. 华脆 Huacui | 18 | 27. 晋富3 Jinfu 3 | 36 |
| 11. 华丹 Huadan | 19 | 28. 葵花 Kuihua | 37 |
| 12. 华富 Huafu | 20 | 29. 礼泉短富 Liquanduanfu | 38 |
| 13. 华冠 Huaguan | 21 | 30. 辽伏 Liaofu | 39 |
| 14. 华红 Huahong | 22 | 31. 龙丰 Longfeng | 40 |
| 15. 华金 Huajin | 24 | 32. 龙冠 Longguan | 41 |
| 16. 华美 Huamei | 25 | 33. 龙红蜜 Longhongmi | 42 |
| 17. 华瑞 Huarui | 26 | 34. 鲁加2号 Lujia 2 | 43 |

35. 鲁加5号 Lujia 5	44	53. 泰山嘎拉 Taishan Gala	63
36. 绿帅 Lüshuai	45	54. 泰山早霞 Taishanzaoxia	64
37. 苹帅 Pingshuai	46	55. 天汪1号 Tianwang 1	65
38. 苹艳 Pingyan	47	56. 望山红 Wangshanhong	66
39. 七月鲜 Qiyuexian	48	57. 向阳红 Xiangyanghong	67
40. 秦富1号 Qinfu 1	50	58. 烟富3 Yanfu 3	68
41. 秦冠 Qinguan	51	59. 烟富6 Yanfu 6	69
42. 秦红 Qinong	52	60. 烟嘎2号 Yanga 2	70
43. 秦星 Qinxing	53	61. 烟嘎3号 Yanga 3	71
44. 秦艳 Qinyan	54	62. 烟红蜜 Yanhongmi	72
45. 秦阳 Qinyang	55	63. 延风 Yanfeng	73
46. 秋富红 Qiufuhong	56	64. 燕山红 Yanshanhong	74
47. 秋锦 Qiujin	57	65. 玉华早富 Yuhua zaofu	75
48. 秋口红 Qiukouhong	58	66. 岳苹 Yueping	76
49. 陕富6号 Shanfu 6	59	67. 岳帅 Yueshuai	78
50. 沈农2号 Shennong 2	60	68. 岳阳红 Yueyanghong	80
51. 胜利 Shengli	61	69. 早翠绿 Zaocuilü	81
52. 双阳红 Shuangyanghong	62		

二、国外选育苹果栽培品种 Foreign Breeding Varieties 82

70. 阿斯 Ace	82	98. 黄太平 Huangtaiping	110
71. 安娜 Anna	83	99. 金矮生 Gold Spur	111
72. 奥查金 Ozark Gold	84	100. 金冠 Golden Delicious	112
73. 澳洲青苹 Granny Smith	85	101. 津轻 Tsugaru	113
74. 坂田津轻 Sakata Tsugaru	86	102. 橘苹 Cox's Orange Pippin	114
75. 北斗 Beidou	87	103. 凯蜜欧 Cameo	115
76. 布瑞本 Braeburn	88	104. 丽嘎拉 Regal Gala	116
77. 长富2号 Changfu 2	89	105. 凉香 Ryoka no Kisetu	117
78. 赤阳 Rainier	90	106. 陆奥 Crispin	118
79. 斗南 Dounan	91	107. 美八 Meiba	119
80. 俄矮2号 Oregon Spur II	92	108. 美味 Ambrosia	120
81. 恩派 Empire	93	109. 蜜脆 Honey Crisp	121
82. 粉红女士 Pink Lady	94	110. 摩里士 Mollie's Delicious	122
83. 福岛短枝 Fudao Spur	95	111. 南方脆 Southern Snap	123
84. 嘎拉 Gala	96	112. 皮诺娃 Pinova	124
85. 工藤 Miya	97	113. 千秋 Senshu	125
86. 宫崎短枝富士 Miyazaki Spur Fuji	98	114. 乔纳金 Jonagold	126
87. 国光 Ralls	99	115. 青森短枝富士 Aomori Spur Fuji	127
88. 黑系乔纳金 Excel Jonagold	100	116. 青香蕉 White Pearmain	128
89. 轰系津轻 Hongxi Jinqing	101	117. 清明 Seimei	129
90. 弘前富士 Hirosaki Fuji	102	118. 瑞丹 Judaine	130
91. 红安卡 Beni Aika	103	119. 瑞林 Judeline	131
92. 红盖露 Gale Gala	104	120. 珊夏 Sansa	132
93. 红将军 Benin Shogun	105	121. 盛放富1 Shengfang Fu 1	133
94. 红星 Starking Delicious	106	122. 首红 Redchief Delicious	134
95. 红玉 Jonathan	107	123. 松本锦 Matsumotokin	135
96. 皇家嘎拉 Royal Gala	108	124. 太平洋玫瑰 Pacific Rose	136
97. 黄冠 Yellow Delicious	109	125. 藤牧1号 MATO	137

126. 瓦里短枝 Vallee Spur Delicious	138	136. 旭 McIntosh	148
127. 王林 Orin	139	137. 选拔红玉 Selected Jonathan	149
128. 维斯特·贝拉 Vista Bella	140	138. 岩富10 Yanfu 10	150
129. 倭锦 Ben Davis	141	139. 印度 Indo	151
130. 舞佳 Polka	142	140. 乙女 Alps Otome apple	152
131. 舞乐 Bolero	143	141. 樱桃嘎拉 Cherry Gala	154
132. 舞美 Maypole	144	142. 元帅 Delicious	155
133. 舞姿 Waltz	145	143. 早红 Zaohong	156
134. 新红星 Starkrimson Delicious	146	144. 早捷 Geneva Early	157
135. 新世界 Shinsekai	147		
附录 I 中国苹果品种中文名称索引 Index to Apple Varieties in China (in Chinese)	158		
附录 II 中国苹果品种英文名称索引 Index to Apple Varieties in China (in English)	160		
主要参考文献 Main References	162		

第一部分 中国苹果概况

Part I General Situation of Apple Industry in China



一、中国苹果栽培历史悠久

A Long History of Apple Cultivation in China

中国是世界上苹果栽培历史最悠久的国家之一，苹果在中国至少有2 200多年的栽培历史。中国的栽培苹果被命名为 *Malus × pumila* Mill., 可分为两大类：中国苹果和西洋苹果。中国苹果古称“柰”，起源于中国新疆西部；汉武帝时代的《上林赋》（公元前126—前118年）已有关于“柰”的记载。稍后，《西京杂记》也提到“柰三：白柰、紫柰、绿柰”。西洋苹果是指目前各国所栽培的苹果，品种大多出自欧美，1871年开始传入中国。无论是中国苹果还是西洋苹果都存在一个漫长的演变过程，都是经过久远的自然选择和人工选择的结果。

China is one of the countries with the longest history of apple cultivation in the world; China has a more than 2 200-year long history of apple production. The cultivated apple of China was named *Malus × pumila* Mill., including *Malus domestica* subsp. *chinensis* Li Y. N. and *Malus domestica* Borkh. The *M. domestica* subsp. *chinensis* Li Y. N. was named ‘Nai’ in ancient China, and originated in western Xinjiang. It was recorded in *Shang Lin Fu* in the Western Han Dynasty era (from 126 B.C. to 118 B.C.). The article *Xi jing za ji* also recorded three kinds of ‘Nai’ including white, purple, and green ones. The *M. domestica* Borkh mainly refers to the major apple cultivars of most countries, and the varieties are mostly from Europe and the United States, in 1871 began to spread to China. Both *M. domestica* subsp. *chinensis* Li Y. N. and *M. domestica* Borkh existed a long evolution process, were all the results of a long natural selection and artificial selection.

二、中国苹果种质资源丰富

China Is Rich in Apple Germplasm

中国是世界苹果属植物的大基因中心。世界上苹果属野生种为27种，原产我国的苹果野生种有16种，为世界的59%。我国的云南、贵州及四川三省密集分布15种苹果野生种，包括台湾林檎、尖嘴林檎及滇池海棠等古老的野生种，形成了苹果属植物遗传多样性中心。另一个多样性中心则是新疆天山山脉，此处形成了新疆野苹果大的自然群落。中国不仅苹果野生种质资源丰富，而且苹果栽培历史悠久，拥有遗传多样极为丰富的苹果种质资源。《中国果树志·苹果卷》描述了苹果野生及砧木资源66份，中国原产品种176份，国内选育品种162份，国外引进品种322份。目前，位于辽宁、吉林、云南及新疆的国家果树种质圃保存苹果资源1 750余份（含部分重复），包括野生类型、农家品种、选育品种、遗传材料及国外引进品种。

China is one of the largest gene centers for *Malus* Mill. in the world. There are 27 wild species of *Malus* Mill. in the world, and 59 percent of them which contains 16 wild species originated from China. 15 wild species including some old wild species such as *M. doumeri*, *M. melliana* and *M. yunnanensis* distribute in Yunnan, Guizhou and Sichuan of China. Another diversity center is located in Tian Shan Mountain of Xinjiang where natural communities of *M. sieverii* formed. China is not only rich in wild species of *Malus* Mill., but

also has long history of apple cultivation and apple germplasm resources with abundant genetic diversity. 66 wild and rootstock resources, 176 original cultivars of China, 162 domestic bred cultivars and 322 overseas introduced cultivars are described in the book *Chinese Fruit Apple*. At present more than 1 750 apple germplasm resources including some duplicates are preserved in the National Repository of Apple Germplasm Resources of Liaoning, Jilin, Yunnan and Xinjiang, which contains wild types, landraces, bred cultivars, genetic accessions and overseas introduced cultivars.



新疆野苹果林 [*M. sieverii* (Led.) Roem of Xinjiang]



内蒙古山定子 [*M. baccata* (L.) Borkh. of Inner Mongolia]



河北八棱海棠 [*M. robusta* (Carr.) Rehd. of Hebei Province]



甘肃垂丝海棠 (*M. halliana* Koehne of Gansu Province)

三、中国是苹果生产大国

China Is the Largest Apple Producing Country

中国是世界上最大的苹果生产国，面积和产量均居世界首位。近年来，中国苹果总产量均稳定在全球苹果总产量的一半左右。据农业部统计，2013年我国苹果种植面积为227.22万 hm^2 ，仅次于柑橘，占我国果园总面积的18.37%，居第二位；总产量为3 968.26万t，占全国水果总产量的25.16%，居全国首位（表1）。苹果在农业产业结构调整、增加农民收入、促进地方经济快速发展等方面发挥着越来越重要的作用。

China is the largest apple producer in the world, the area and output are all the first in the world. In recent years, the apple's total output is stable in the world, about half of the total apple production. According to the Ministry of Agriculture statistics, in 2013, the total cultivated area of apple in China was 2 272 200 hectares, which second only to the cultivation area of citrus, accounting for 18.37% of the total fruit area of China. The total production of apple in China was 39.6826 million tons, accounting for 25.16% of the total fruit production of China (Table 1).

Apple plays very important roles in many fields, including the structure adjustment of agricultural industry, increasing income, and promoting the rapid development of local economy and so on.

表1 我国主要水果栽培面积和产量 (2013)

Table 1 Main fruit cultivated area and production in China (2013)

水果品种 Fruits	栽培面积 (万hm ²) Area (Ten thousands hectare)	占总面积比例(%) Percentage	产量 (万t) Production (Ten thousands ton)	占总产量比例(%) Percentage
苹果 Apples	227.22	18.37	3 968.26	25.16
柑橘 Citrus	242.22	19.57	3 320.94	21.06
梨 Pears	111.17	8.99	1 730.08	10.97
桃 Peaches	76.59	6.19	1 192.41	7.50
葡萄 Grapes	71.46	5.78	1 155.00	7.32
荔枝 Litchis	54.28	4.39	202.25	1.28
香蕉 Bananas	39.20	3.17	1 207.52	7.66
猕猴桃 Kiwifruits	16.15	1.30	176.58	1.12
菠萝 Pineapples	6.05	0.49	138.64	0.88
其他 Others	392.80	31.75	2 679.58	16.99
水果总面积/产量 Fruit total area or production	1 237.14	100.00	15 771.26	100.00

数据来源：中国农业部。

四、中国苹果栽培区域与品种结构

Planting Distribution and Layout of Apples in China

(一) 分布区域广泛 Extensive Distribution

我国有适宜于苹果树生长发育理想的地理、土壤和气候条件，苹果分布区域较为广泛，包括渤海湾产区（辽宁、山东、河北等省份）、黄土高原产区（山西、甘肃、陕西、河南等省份）、黄河故道（豫东、鲁西南、苏北和皖北）和秦岭北麓产区（渭河两岸、豫西、湖北西北部），以及西南冷凉高地

产区（四川、云南、贵州等省份）、东北寒地小苹果产区、新疆苹果产区。其中，渤海湾产区、黄土高原产区、黄河故道和秦岭北麓产区、西南冷凉高地产区为2008年农业部规划的四大苹果优势主产区。

近年来，中国苹果生产的区域布局发生了较为明显的变化，四大主产区逐步调整为渤海湾和黄土高原两大优势主产区格局，在区域内部也呈现出“西移”和“北扩”趋势。

In China, we have ideal geographical soil and climate conditions, which is suitable for the apple tree growth and development. The distribution area of apple is widely, including Bohai Bay region (Liaoning, Shandong, Hebei, etc), the Loess Plateau region (Shanxi, Gansu, Shaanxi, Henan, etc), the Yellow River communist-held (east of Henan, southwest of Shandong, north of Jiangsu and north of Anhui) and North Qinling region, Southwest cold highland districts (Sichuan, Yunnan, Guizhou, etc), the Northeast cold little apple production region, and Xinjiang apple production region. Among them, the Bohai Bay region, Loess Plateau region, Yellow River communist-held and North Qinling region, and Southwest cold highland districts, were planned as four major advantages regions of producing apples by the Ministry of Agriculture in 2008.

In recent years, the apple production regions layout taken placed obvious changes, the four major advantages regions gradual adjustment for two major producing regions pattern, including Bohai Bay and the Loess Plateau, and within the region also presents “devastated” and “north expansion” trend.

（二）中国苹果品种结构 Variety Structure of China Apple

由于诸多原因，具有悠久栽培历史的原产中国苹果品种现存较少。目前中国苹果生产上主栽品种多为国外引进，红富士占据了苹果种植的主要地位，从国外引进的一些品种，如藤牧1号、美八、乔纳金、嘎拉系等品种也有一定的发展。近年来，我国的苹果新品种选育也有一定突破，育成的寒富、秦阳、华硕等多个新品种在各大苹果产区均有不俗的表现。中国苹果主栽品种与砧木见表2。

Due to many reasons, the existing apple varieties originated from China which has long cultivation history is less. At present, most of cultivation varieties in China are imported, the Fuji occupied the main position of apple planting, some other introduced varieties also had a certain development, including MATO, Meiba, Jonagold and Galas as well. Recently, the apple varieties breeding also have some breakthrough in China, multiple new varieties had good performance in some big apple production areas, such as Hanfu, Qinyang, and Huashuo as well.

表2 中国苹果主要栽培品种与砧木

Table 2 Main cultivars and rootstocks of apple in China

省（自治区、直辖市） Province (autonomous region and municipality)	主栽品种 Main cultivars	主要砧木 Main rootstocks	
		实生砧木 Seedling rootstock	矮化砧木 Dwarfing rootstock
陕西 Shaanxi	富士系、元帅系、嘎拉系、金冠、华冠、秦冠、千秋、乔纳金、秦阳等 Fujis, Delicious, Galas, Golden Delicious, Huaguan, Qinguan, Senshu, Jonagold, Qinyang	楸子 <i>Malus prunifolia</i> (Willd.) Borkh	M系, SH系, M series, SH series
山东 Shandong	富士系、元帅系、嘎拉系、金冠、乔纳金 Fujis, Delicious, Galas, Golden Delicious, Jonagold	平邑甜茶、八棱海棠 <i>M. hupehensis</i> var. <i>pinyiensis</i> Jiang, <i>M. robusta</i> (Carr.) Rehd.	M9, M26, SH系, T337 M9, M26, SH series, T337

(续)

省 (自治区、直辖市) Province (autonomous region and municipality)	主栽品种 Main cultivars	主要砧木 Main rootstocks	
		实生砧木 Seedling rootstock	矮化砧木 Dwarfing rootstock
河北 Hebei	富士系、元帅系、嘎拉系、金冠、国光、红玉、印度等 Fujis, Delicious, Galas, Golden Delicious, Ralls, Jonathan, Indo	山定子、海棠 <i>M. baccata</i> (L.) Borkh., <i>Malus</i> sp.	M系, SH系 M series, SH series
甘肃 Gansu	富士系、元帅系、嘎拉系、金冠、秦冠、澳洲青苹等 Fujis, Delicious, Galas, Golden Delicious, Qinguan, Granny Smith	楸子 <i>M. prunifolia</i> (Willd.) Borkh.	M系, SH系 M series, SH series
河南 Henan	富士系、元帅系、嘎拉系、秦冠、华冠、金冠、美八、华硕等 Fujis, Delicious, Galas, Qinguan, Huaguan, Golden Delicious, Meiba, Huashuo	河南海棠、八棱海棠 <i>M. henanensis</i> (Pamp.) Rehd., <i>M. robusta</i> (Carr.) Rehd.	M系 M series
山西 Shanxi	富士系、元帅系、嘎拉系、秦冠、华冠、金冠、乔纳金、国光等 Fujis, Delicious, Galas, Qinguan, Huaguan, Golden Delicious, Jonagold, Ralls	山定子、湖北海棠、楸子 <i>M. baccata</i> (L.) Borkh., <i>M. hupehensis</i> (Pamp.) Rehd., <i>M. prunifolia</i> (Willd.) Borkh.	M系, SH系, GM256 M series, SH series, GM256
辽宁 Liaoning	富士系、寒富、元帅系、嘎拉系、国光、金冠、乔纳金、华红等 Fujis, Hanfu, Delicious, Galas, Ralls, Golden Delicious, Jonagold, Huahong	山定子 <i>M. baccata</i> (L.) Borkh.	GM256, 辽砧2号, 7734 GM256, LG2, 7734
新疆 Xinjiang	富士系、元帅系、嘎拉系、金冠、寒富等 Fujis, Delicious, Galas, Golden Delicious, Hanfu	塞威氏海棠 (新疆野苹果) <i>M. sieverii</i> (Led.) Roem.	GM256, M系, SH系 GM256, M series, SH series
云南 Yunnan	富士系、嘎拉系、金冠、华硕等 Fujis, Galas, Golden Delicious, Huashuo	海棠 <i>Malus</i> sp.	M系, SH系 M series, SH series
四川 Sichuan	富士系、嘎拉系、金冠、华硕等 Fujis, Galas, Golden Delicious, Huashuo	海棠 <i>Malus</i> sp.	M系, SH系 M series, SH series
其他省份 (黑龙江、吉林、内蒙古) Other provinces (Heilongjiang, Jilin, Inner Mongolia)	金红、龙冠、龙丰、七月鲜等 Jinhong, Longguan, Longfeng, Qiyuexian	山定子 <i>M. baccata</i> (L.) Borkh.	GM256, 辽砧2号, 7734 GM256, LG2, 7734