

Introducing New Apple Cultivars through a Coordinated Approach from Consumer till Breeder

F.M. Maas¹, G. Heijerman-Peppelman¹, M.J. Groot¹, F.W. Schoorl¹ and K. van der Linden²

¹Applied Plant Research, Wageningen University and Research Centre, P.O. Box 200, 6670 AE Zetten, The Netherlands

²Inova Fruit BV, P.O. Box 222, 4190 CE Geldermalsen, The Netherlands

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Abstract

The introduction of new apple cultivars into a worldwide full market can only be successful if all parties of the entire production-market chain cooperate closely together according to a mutually accepted strategic plan. In 2001 such a strategy was developed by Inova Fruit BV in close cooperation with Applied Plant Research (WUR-PPO) of Wageningen University and Research Centre, fruit extension specialists, and the Dutch Fruit Growers Organization. Consumer preferences were the starting point for selecting new cultivars from the hundreds of cultivars tested by WUR-PPO during the last decades. With the consumer preferences in mind, cultivar profiles were developed listing the attributes desired by nurseries, growers and sales organizations. To remain successful in the market both production and quality of the apples should be under strict control to continually meet the consumer demands. This also creates the best guarantee for good prices for the growers. To achieve these objectives the selected cultivars were introduced as ‘club varieties’. This implies the use of specific brand names, controlling numbers of trees produced and planted, and organizing the sales and marketing of the apples.

Initially, four apple cultivars were selected matching the preferences of different groups of consumers. These cultivars were introduced to the growers. In 2003 pilot-orchards were established in the Netherlands and Belgium. These pilot-orchards served to develop the guidelines for cultivar-specific cultivation protocols. Further, these pilot-orchards were used to optimize cultivation practices and post harvest storage conditions. In 2004, four cultivars, ‘Diwa’, ‘Civni’, ‘Delcores’ and ‘CPRO-47’ were released and given the brand names Junami®, Rubens®, Autento® and Wellant®, respectively. The first commercial orchards were planted in 2005. Autento® was withdrawn in 2006. Up to 2010 about 1.53 million Junami®, 1.3 million Rubens®, and almost 520,000 Wellant® trees have been planted in the European Union. Cultivar specific marketing and promotion campaigns have been carried out and contributed significantly to the success of these new cultivars within Europe.

INTRODUCTION

Worldwide many new apple cultivars become available each year from breeding programs all over the world. In the past 30 years approx. 3000 cultivars have been evaluated by the WUR-Applied Plant Research (WUR-PPO) for cultivation in North-West Europe. Due to global overproduction, the profitability of apple production has decreased, not only as a result of decreasing prices but also because of increasing costs for labour, fertilizers and chemicals for crop protection. To make apple production profitable again, the concept of club varieties was introduced, in order to control the amount and quality of apples produced and to adapt the production volume to the market demand.

Defining the market demand requires detailed knowledge about apple consumers. What are the characteristics of apples that make consumers buy or reject apple cultivars and what makes them buy the same cultivars over and over again? Clearly, quality

characteristics like an attractive and recognizable appearance together with a good taste are important for consumers to buy any apple. However, renewed purchase of the same cultivar requires apples which are always of almost the same excellent quality. If not, consumers will be disappointed and will be more inclined to buy another apple cultivar or even another fruit species next time. Nevertheless recent introductions in the Netherlands have shown that excellent quality characteristics only, are not enough for a successful introduction into the market. E.g. at the end of the 20th century the introduction of the cultivar Delblush Tentation® in the Netherlands failed despite its very attractive and distinctive appearance and good eating quality. In order to increase the chances of a new cultivar on the market and to make it profitable for the growers, it was recognized that this requires a coordinated approach involving all participants in the fruit production and marketing chain. This paper describes an example of such an approach coordinated by Inova Fruit BV that resulted in the introduction of 4 new apple cultivars in the Netherlands and Belgium in 2004. Not only the efforts before the actual introduction, but also the results of this approach after the introduction of the cultivars up to 2010 will be discussed.

METHODOLOGY

Consumer Preferences

Knowledge about the motives that make consumers buy a certain apple cultivars is an essential key factor in the decision process of choosing which new apple cultivar will be appreciated and bought by consumers. Therefore, in our coordinated approach of introducing new apple cultivars in the Netherlands and Belgium, consumer preferences for taste, colour, shape etc. were examined in the Netherlands, Belgium, Germany and England, as these are the most important countries for the sales of Dutch and Belgian apples. This study resulted in a number of taste profiles that were linked to specific groups of consumers. Consumer taste profiles were used as the basis for development of cultivar profiles to be used in the selection of cultivars from the large number of new cultivars becoming available worldwide and suitable for cultivation in the North-West Europe.

Cultivar Profiles

Once the consumer preferences were known, further selection criteria were needed to select the cultivars which best fitted the consumer taste profiles. Cultivar attributes like the performance of the trees in the nursery and the orchard, storability and shelf life of the harvested apples were used to select the most suitable cultivars within a consumer taste profile. This selection was done in close cooperation with the Dutch fruit advisors, selected fruit growers and fruit tree-nurserymen. Priority lists including the most important attributes from the side of the nurserymen as well as from the fruit growers were made and used for further selection of suitable cultivars.

Pilot Orchards

Cultivars matching most of the desired traits of the cultivar profiles described above are no guarantee for a successful introduction. Grower confidence in a cultivar and the organization of its sales and marketing is needed to make growers planting new cultivars. For a grower it is important that a cultivar can be grown without too many problems and fruit production is not too labour-intensive. Eight pilot orchards were established at grower farms in the Netherlands and Belgium, including one at the experimental orchard of WUR-PPO, in order to introduce and demonstrate the selected cultivars to the growers two years before their actual introduction. Pilot orchards were planted in different types of soils, both in fresh soil and in soil used for apple production before (replant situation). Trees had to be grown according to a specific cultivation protocol and the pilot growers were advised by independent fruit consultants. The pilot orchards were also used to further improve some cultivation techniques like pruning and

crop load regulation by means of chemical thinning compounds. Fruits of these pilot orchards were used for post harvest research and for promotion activities to gain the interest of both growers and retailers.

Branding and Marketing

The production of recognizable fruits always meeting the specific quality attributes is one of the key factors needed for successfully marketing a new cultivar. Consumers should never be disappointed by the quality of the apples, neither by its appearance in the shop nor by its shelf life at home and its taste. Only then, consumers will come back and buy a specific cultivar again. Well thought-out brand names were given to the new cultivars taking into account both quality characteristics of the fruits as well as the target group of consumers. Only fruits meeting the strict standards of fruit quality (size, colour, sugar content, firmness, unblemished appearance) will be sold using the brand name. Fruits not meeting these standards are sold with another name, usually the cultivar name, or went to the processing industry. Advertisements and sales promotion actions were organized to make the brand names well-known and recognizable to the consumers. Special packaging material, stickers for individually labeling the fruits, banners, etc. were developed to further improve the branding of the new cultivars to the public.

Control of Production and Sales

Another important part of the coordinated approach of the introduction is to keep the production volume of a new cultivar in balance with the expected market demand. This is being achieved by Inova Fruit BV by controlling the number of trees produced in the nursery and trees sold to fruit growers. In addition all fruits produced are commonly preserved in cold stores of a few auctions in The Netherlands and Belgium. With the exception of one cultivar, Wellant®, which is produced for a niche market and may also be directly sold from the farm by the grower, the sales of all fruits are carried out solely by the auctions. These auctions are not only responsible for the storage, grading and packaging of the apples, but also for contracting supermarkets and other buyers in order to sell the apples. This management of a cultivar as a club variety by Inova Fruits BV allows the best control of the sales of only first class apples under the brand name and prevents that individual growers are tempted to sell apples of poor quality under the brand name aiming for high prices and thereby damaging the image of the apple brand and consumer confidence in the quality of the particular cultivar. Sales of a club variety at higher prices than those that can be realized for 'free' cultivars is a prerequisite to obtain and to maintain grower confidence. Without this confidence, growers will hold back in planting new cultivars.

RESULTS AND DISCUSSION

Consumer Preferences

A wide variety of apple cultivars was used to determine consumer preferences and to define specific consumer taste profiles. Consumer taste profiles were used as the basis for defining cultivar profiles. The following consumer profiles were distinguished and used to set up cultivar profiles:

1. Young people (age 18-34) and families with young children.
Firm, crisp, juicy, fruity apples.
2. Middle aged people (age 35-55).
Fresh sweet, aromatic, crunchy, juicy apples.
3. Elderly people (age above 55).
Sweet, aromatic, fragrant, easy to bite.

Cultivar Profiles

Next to the consumer taste profiles, a number of traits was defined for tree performance in the fruit tree-nursery, the orchard, and during post harvest storage and

shelf life. Both for fruit tree-nurseries and fruit grower's production costs are considered as one of the most important economic factors. These costs should not be much higher than those of the cultivars already available. Nevertheless, in general the price growers have to pay for trees of club cultivars is significantly higher than the price of other cultivars, which is due to a license fee that has to be paid to the breeder or owner of the cultivar. In addition growers also have to pay a contribution fee for marketing and promotion and the costs for the obliged visits of fruit consultants.

To limit production costs in the nursery, new cultivars should have a high percentage of successful budding or chipping, should not require an interstem, and have a low labour requirement. The five most important plant traits in the nursery are: tree vitality, low susceptibility for bleeding of 'knip' trees at the start the second year in the nursery, development of lateral branches which do not break easily during grubbing and transportation, timely termination of shoot growth and leaf drop in the autumn, and low chilling requirements to break winter dormancy. Further, trees should have a low susceptibility to mildew, spider mites and rust mites. Last but not least nursery-men should be able to rely on the availability of virus-free good quality bud wood. In The Netherlands, nurseries producing certified virus-free trees are obliged to buy bud-wood from the Dutch Propagation Nurseries obtained from their collection of virus-free mother trees.

Fruit growers are interested in cultivars with regular and high productions of apples of high quality which have of a low labour requirement, i.e. cultivars with low production costs. Therefore, important traits to look for when selecting new cultivars are: uniform growth, early onset of production after planting, not prone to alternate bearing, resistant toward the main diseases and pests, and a picking time that does not interfere with other main cultivars. Flowering time of new cultivars should overlap with those of the pollinating cultivars to ensure fruit set. To become less dependent on the availability of crop safety products and to make fruit growing more sustainable, new cultivars for the Netherlands should be less sensitive or resistant to diseases like scab, mildew, bacterial canker and fruit rot. Finally, a long storability of the fruits and low susceptibility towards physiological disorders and postharvest decay are important to get a long sales period and to fulfill the requirements made by most retailers and supermarket chains.

Pilot Orchards

On the basis of the results of chemical thinning and pruning trials as well as of several other cultivation practices tested by WUR-PPO and fruit consultants in the pilot orchards, a cultivation protocol was made for the growers interested in planting the cultivars introduced by Inova Fruit BV. Besides for postharvest research, fruits grown in the pilots orchards were used for promotion purposes and to gain the interest retailers.

Branding, Marketing and Controlling the Sales of a Cultivar

Even more important than tree performance in the orchard, grower confidence in a new cultivar depends on the perspective of getting and maintaining a good price for his apples during the lifespan of his orchard. Therefore, the concept for introduction of the new cultivars by Inova Fruit BV includes not only the control of the production volume to match it with the market demand, the control of fruit quality to ensure and maintain consumer satisfaction, but also active branding and marketing using cultivar trade names targeted to well-defined groups of consumers. E.g. Junami®, a name originating and compiled from the French words Jeune (young) and Ami (friend), was chosen to emphasize this is an apple for younger people. As younger people are more active and involved in sport than elderly people, marketing campaigns and promotion activities were organized to promote Junami® as a healthy thirst-quenching snack to enjoy a break between all kinds of activities using the slogan 'Have a Junami® break' (www.junami-apple.com).

Development of Production Area and Sales of New Cultivars

So far, the chain-oriented approach has worked well for Junami®. Since 2005 the orchard area of Junami has increased from 25 to 407 ha in 2009. The sales of this cultivar also developed well. The market demand for Junami® in Europe is still rising and average prices for which the apples were sold by the auctions amounted to € 0,93/kg in 2008, which was about twice the price for ‘Elstar’, the most grown apple cultivar in the Netherlands. However, for Rubens® this approach was less successful until now. Grower confidence in this cultivar has decreased due to its sensitivity for bacterial canker, high labour costs for thinning and picking, and lower fruit prices than expected. The average sales prices realized by the auctions decreased from € 0.99 in 2008 to € 0.65/kg in 2009 (www.inovafruit.nl). Although, the chain-oriented approach is no guarantee for a successful introduction of a new apple cultivar, the experiences of recent introductions of new apple cultivars worldwide has clearly demonstrated that good tree performance and fruit quality characteristics by themselves are not enough to make a new cultivar successful. Cooperation with auctions and retailers and a tailor-made marketing and promotion strategy is needed in to make a cultivar known to the consumers and to successfully compete with other cultivars in the global apple market. For the cultivars Junami®, Rubens® and Wellant® introduced in 2004, it is yet too early to tell whether they will be successful and can be grown profitably by the growers during the entire life span of the orchard. Nevertheless, the fact these three new cultivars contribute to ca. 8% of the total area of apple orchards in the Netherlands, clearly shows the interest and confidence of Dutch growers in these apple cultivars (Fig. 1).

Figures

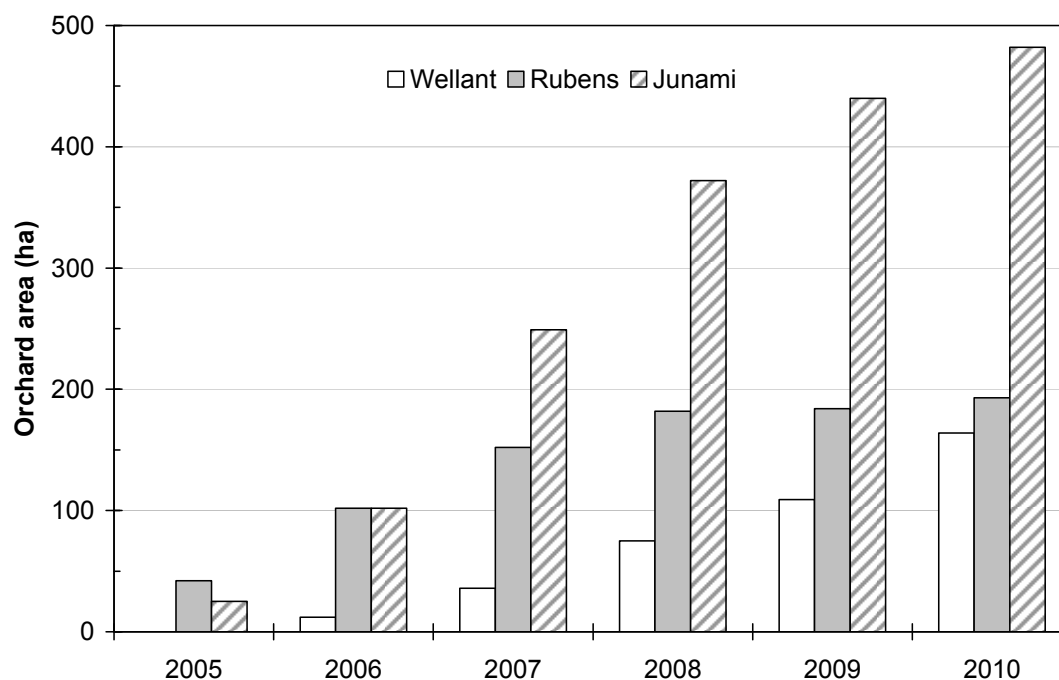


Fig. 1. Development of orchard area (ha) in the Netherlands of three new apple cultivars introduced by Inova Fruit BV.

