MINISTRY OF AGRICULTURE AND RURAL DEVELOPMENT

ADER 3.2.2. BREEDING OF FRUIT SPECIES IN ORDER TO INCREASE SECURITY AND SAFETY FOOD

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PROJECT OBJECTIVE

Creating of new fruits and berries varieties with high productivity, fruit quality, resistance to diseases and pests, in order to protect the environment and consumers and to increase security and safety food.

Project budget: 856,841,18 lei
RESULTS

I. Enlargement of genetic base to obtain new fruits and berries varieties

II. Improving the fruits and berries assortment by registering and patenting new varieties and rootstocks

III. Promoting and spreading of new varieties into commercial orchards
ENLARGEMENT OF GENETIC BASE TO OBTAIN NEW FRUITS AND BERRIES VARIETIES

I.1. CARRY OUT OF CROSSING COMBINATIONS - 85 cross combinations = 6.662 hybrid seeds/stones

APPLE – 15 cross combinations = 2.641 hybrid seeds
PEAR – 10 cross combinations = 406 hybrid seeds
PLUM – 8 cross combinations = 1.711 hybrid stones
SWEET AND SOUR CHERRY = 12 cross combinations = 929 hybrid stones
PEACH AND NECTARIN – 15 cross combinations = 910 hybrid stones
WALNUT AND CHESTNUT – 25 cross combinations = 65 hybrid fruits
I.2. NURSERY - HYBRIDS ON OWN ROOTS = 2.376 hybrids

APPLE = 1.802 hybrids
PEAR = 169 hybrids
PLUM = 405 hybrids

I.3. FIELD SELECTION

APPLE = 316 hybrids
II. IMPROVING THE FRUITS AND BERRIES ASSORTMENT BY REGISTERING AND PATENTING NEW VARIETIES AND ROOTSTOCKS

2016 – Registering of 3 apple varieties: VALERY, CEZAR, REVIDAR

- **VALERY**: winter variety, resistant to scab, large fruit (180 g), fruit quality, productiv (30-35 t/ha).
- **CEZAR**: autumn - winter variety, resistant to scab and powdery mildew, large fruit (200 g), productiv (30-35 t/ha).
- **REVIDAR**: autumn variety, low vigour, resistant to scab and powdery mildew, productiv (28-30 t/ha).
II. IMPROVING THE FRUITS AND BERRIES ASSORTMENT BY REGISTERING AND PATENTING NEW VARIETIES AND ROOTSTOCKS

2017 – Registration of new 4 varieties (pear, quince and almond) to ISTIS

- **PANDORA**: pear variety, resistant to fire blight and *Psylla*, productive, medium-sized fruit, few sclereides, good storage capacity.
- **CEDONIA**: quince variety, medium vigour, resistant to fire blight, medium sized fruit (150 g), good taste, few sclereides; it is harvested at the end of September and can be stored until June.
II. IMPROVING THE FRUITS AND BERRIES ASSORTMENT BY REGISTERING AND PATENTING NEW VARIETIES AND ROOTSTOCKS

- AUTOFERTIL 1 and AUTOFERTIL 2: almond varieties, high productivity (1.250 kg kernel/ha); resistance to *Taphrina deformans* and *Coryneum beijerinckii*; resistance to winter frost and late spring frost.
II. IMPROVING THE FRUITS AND BERRIES ASSORTMENT BY REGISTERING AND PATENTING NEW VARIETIES AND ROOTSTOCKS

2018 – Registration of new 3 varieties (apple, walnut and strawberry)

- **H 8/86 – 82**: autumn – winter apple elite, resistant to scab and powdery mildew, suitable for high density orchards.

- **REDNUT**: walnut variety, medium vigour, large fruit, reddish kernel, high efficiency in the kernel; designate for fresh consumption, but also for the food and confectionery industry.

- **IREAL**: strawberry variety, resistant to specific diseases of strawberry, large fruit, firm, high sugar and C vitamin content.
II. IMPROVING THE FRUITS AND BERRIES ASSORTMENT BY REGISTERING AND PATENTING NEW VARIETIES AND ROOTSTOCKS

2018 – Patenting of new 4 sweet cherry varieties

- **AMARIS**: bitter cherry variety, early ripening time, low vigour, large fruit (4.8 g), designate for processing.

- **CROMA**: sweet cherry variety, medium to late ripening time, medium vigour, large fruit (9.0 g), mixed destination.

- **ELAIAŞI**: sweet cherry variety medium ripening time, medium vigour, large fruit (9.3 g); suitable for high density orchards.

- **MUŞATINI**: sweet cherry variety, medium ripening time, medium vigour, large fruit (9.5 g); suitable for high density orchards.
III. PROMOTING AND SPREADING OF NEW VARIETIES INTO COMMERCIAL ORCHARDS

III.1. Posting on the MADR and RIFG sites of the results (power point presentations, phases I – VII)

III.2. Presentation and publication of 18 scientific papers in Romania and 5 scientific papers abroad

III.3. Establishment of 3 demonstrative plots of plum, sweet cherry and sour cherry:

- Sweet and sour cherry demonstrative plot: 0,5 ha, 28 genotypes of different origins, established in 2016;
- Plum demonstrative plot: 0,35 ha, 33 genotypes of different origins, established in 2017;
- Plum demonstrative plot: 6 ha, 14 varieties of different origins grafted on 4 Romanian rootstocks, established in 2018.
III. PROMOTING AND SPREADING OF NEW VARIETIES INTO COMMERCIAL ORCHARDS

III.4. Meetings of technology transfer:

- *Working meeting* regarding Breeding of *Prunus* in Romania, organized by USAMV Bucharest in side of the International Peach Symposium, which carry out at RIFG Pitesti Maracineni on 5 July, 2017 and at RSFG Constanta on 7 July, 2017; at this meeting attended researchers (50%) and professors (50%).

- *Open Plum Day*, on July 20, 2018; at this open day attended Romanian and foreign researchers (80%), representatives of the Ministry of Agriculture and Rural Development and the Academy of Agricultural and Forestry Sciences of Bucharest (10%), farmers (10%);

- *Open Apricot Day*, Hungary - on July 2018, where attended researchers and farmers from Hungary (90%) and researchers from RSFG Constanta (10%).
III. PROMOTING AND SPREADING OF NEW VARIETIES INTO COMMERCIAL ORCHARDS

III.4. Meeting of technology transfer:

- *Sweet Cherry Day*, on June 2018, organized by USAMV Bucharest and Istrita-Buzau Experimental Station; at this open day attended researchers (50%), professors (20%) and private farmers (30%). RIFG Pitesti has attended with 12 sweet cherry samples, and RSFG Iasi, with 3 sweet cherry samples. The cultivars Andreiași and Elaiasi from RSFG Iasi have won first and second place;

- *Session of Scientific Papers*, on September 2018, organized by RIFG Pitesti; at this symposium attended researchers (75%), professors (15%) and private farmers (10%); on this occasion a national apple competition was held and 50 apple samples from Arges, Dambovita, Bistrita, Buzau, were introduced in the panel test.

- *XIIth Congress of SRH*, on October 2018, where a fruit exhibition was held with the latest assortment creations; at this Congress attended researchers (50%) and professors (50%).
The book “Assortments for modern fruit growing” presents a short description of the main Romanian and foreign cultivars as well, adapted to our country pedoclimatic conditions.
Since 1967 the fruit species breeding programs started at RIFG Pitesti and running as permanent activity with different goals along the time.

The breeding process is a continuous activity, requiring a permanent adaptation of the objectives to the growers and market.

Although there are a large number of fruits and berries cultivars, each country tends to promote its own assortment, mainly due to the ecological adaptation capacity and the competition of the world market as well.

However, there is a small group of cultivars with the tendency of globalization, which is imposed by commercial factors only.