Subject

IDENTIFICATION OF MAJOR PESTS AND DISEASES FOR TOP AND SOFT FRUITS OCCURRED IN ECONOMIC PLANTATIONS OF KOSOVA DURING THE PERIOD 1960-1990

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Introduction:

In my study with caption "**Identification of species, varieties and under grafts of fruit trees that are cultivated in Kosovo**", I have already pronounced that from total area with fruit trees (**10.300** ha), **85%** of those are private farmers ownership while **14.4%** are property of ex social sector who has to be privatized by improvement of positive constitution of trade economy.

During last **30 years** existing private farmers orchards are fail **extensive orchard** which are continually in reduction due to the transmigration of population from rural area; This orchards have been exploited without any interventions of agro and pomology methods and measures as well without treating and protection against pathogens and pernicious, leaving them without care**.**

Concerning orchards in the ex social sector, they have been defected and damaged by **human being factor** during of Serb occupation from 1991 who has contributed not using any of agro and pomology methods and measures as a result in the total destruction of all area planted with orchards.

With regard private farms of fruit trees protection against pathogens and diseases it well known that majority of our farmers do not care at all concerning interventions with treatment with pest and disease, not from reason that is not aware for importance of the issue mentioned and big detriment in economy as result of it but because of poor and bad conditions that they are facing out and not proficient professional government after the conflict who is not in the position and capacity to help and take care for farmer.

For the above mention orchards (private farms) it is assumed that only one from pomology methods performed by farmers; this is about **mechanic cleaning method** for garland and eventually one winter spraying with:

- ***Kreozan 2% or***
- ***Gebotox*** 1%

On the other hand all the orchards that use to be in the social sector which has been established in Dukagjini Valley and other areas of Kosovo belonging the **intensive orchards** where most contemporary technology and all methods and protection measures against pathogens and diseases has been applied.

These orchards during time of their exploitation in a period of 30 years has been important economic development issue for Kosovo providing constantly the market with fresh fruits as well handling profitable results which affects in unemployment alleviation in rural area.

After this disadvantage of the orchards, in this time it is the massive deficiency of local fruits in inside of market and particularly in urban area where **SPHPK** Project attempt to assist on rehabilitation of arboriculture sector. This is the programme of rising orchards in commercial bases to the local farmers, in those families that possess small plots (parcels) from **0, 25-1, 00 ha**. ; And who perform population requirement for fruits in internal and external market as well as a very important source of income and attractive engagement in rural area of Kosovo.

Identification of diseases and economic pernicious during period 1960-1990 for most important fruits such as: apple, pear, plum, cherry, raspberry, strawberry and blackberry, will be presented as it follows:

I. ***Pests and Diseases identified in apple and pear***

a) ***Diseases***

1. Venturia inaequalis Aderh. (apple scabies)
2. Venturia pirina Aderh . (pear scabies)

The above mentioned pathogens procure the most dangers diseases of apple and pear. In the practice have been exposed as well others pathogens like:

3. Monilia fructigena-putrefaction (corruption) and
4. Agrobacterium tumefaciens (root neck cancer)

Pathogens **Venturia inaequalis Aderh**.; **Venturia pirina Aderh** . and **Monilia fructigena** has been treated successfully with chemicals:

- Dithan M-45 0,25 %
- Antracol wp-70 0,2o %
- Antracol bakri 0,35 %
- Dodin S-65 0,08 %
- Melprex S-65 0,08 %
- Cibak 0,6 %
- Orthocid S-50 0,25 %
- Polirom combi 0,25 %

It is important to mention that **systemic fungicide** as well those with **double actions** furthermore has been used. For example we can mention:

- Enovit-M 0,06%
- Derosol 0,06 - 0,08 %
- Saprol E-20 0,1 - 0,15 %
- Rubigan 0,04 - 0,07 %

5. Podosphera leucotricha- Calyx, satisfactory treated with:

- Afugan 0,08 - 0,1 %
- Cosan 0,3 %
- Karathane wp 0,06 - 0,1 %
- Nimrod 0,05 - 0,08 %
- Acricid 0,2 0,4 %

b). ***Pests***

1. **Carpokapsa pomonella** (Apple worm)treated with following chemicals:

- Gusation wp 0,15-0,20%
- Basudin 2o wp 0,2 %
- Sistemin E - 40 0,1 %
- Fosfamid E - 40 0,1 %
- Dimeton 0,15-0,20 %
- Rogor - 40 0,15-0,20 %

- Zolone - PM 0,2 %
- Imidan S - 50 0,2 %
- Hostation S - 40 0,1 5%

2. Leaf small- butterfly treated with**:**
- Lebaicid 0,15 %
- Paration 0,1- 0,15%
- Dimilin 0,12 %

3. Panonychus ulmi – Red spider treated with:
- Pliktran 0,1%
- Animert 0,2%
- Keltane Ec 0,25%
- Tedion 0,2%
- Neoron 0,1%
- Omite 57E 0.1%
- Tiodan E-35 0,2%
- Rospin 0,2%

4. **Aphididae (leaf lous)**
5. **Aspediotus perniciosus**
6. **Hyponomenta malinellus (Apple moth)**
7. **Anthonomus pyri**
8. **Psylla pyrisuge (Pear psylla)**

II. ***Pests and diseases identified in plums***

a) ***Diseases***

From all the diseases that have been featured in this fruits are:
1. **Polystigma rubrum**
2. **Tafrina deformans**
3. **Clasterosporium**
4. **Monilia fructigena**

Against these diseases the fruits treated by following:
- Cineb 0,3 5%
- Cibak 0,6 %
- Dithan M-45 0,2 5%
- Antracol 0,25 %
- Delan 0,1 %

b). ***Pests***

Most distressed pernicious in plums:
1. **Haplocampa**
2. **Lasperasia funebrana**

3. **Lecanium corni**
4. **Pononychus ulmi**

They have been treated by following:
- Sistemin 0,1 %
- Hostation 0,15 %
- Imidan S-50 0.2 %
- Basudin wp 0,2 %
- Diazinon 0,2 %
- Gusation 0,2 %
- Lebaicid 0,15 - 0,20 %

III. ***Pests and Diseases identified in cherry***

a) ***Diseases***
1. **Monilia laxa** (fruits and flowers corruption)
2. **Cocomyces hiemalis** (Defilement of leafs)
3. **Rhagoletis cerasi** (cherry fly)

They been treated by following:
- Benlaite 0,1 %
- Melprex S - 65 0,1 %
- Dodin S - 65 0,1 %
- Delan 0,1 %

b). ***Pests***
1. **Spy-hole leaf (Clasterosporium)**
2. **Red spider (Panonycus ulmi) and**
3. **Cocomyces hiemalis**

They have been treated by following:
- Systemin 0,1 %
- Fosfamid 0,1 %
- Lebaicid 0,2 %

IV. ***Raspberry Pests and Diseases identified***

a) ***Diseases***
1. **Didimella (Drying of steam and branches)**
2. **Cocomyces hiemalis (Pock – marked leaf)**

They been treated by following:
- Antracol cooper 0,3 %
- Antracol 0,2 %
- Dithan M - 45 0,2 %

b). ***The presence of Pests***

1. **Raspberry fly**
2. **Raspberry worm**
3. **Anthonomus pysi (Flower-eater)**
4. **Spiders**

Treated by:

- Enovit M	0,1 %
- Dedevap	0,15%
- Acetellic	0,15%

V. ***Pests and Diseases identified in Quince***

1. **Mycosphaerella cydonia(Leaf defilement)**
2. **Erwinia amylowora (Bacterial Combustion)**
3. **Podosphaera oxyacantha (Calyces)**
4. **Aphididae (Louse)**

VI. ***Pests and Diseases identified in Strawberry***

In a practice strawberry has been protected and treated against:

1. Putrefaction and
2. Botrytis application of 2- 3 damping- spraying with:

-Euparen	0,25 %
-Enovit M	0,06 - 0,07 %.

The first damping- spraying allocated in a beginning of flowering while the second one almost 10 days after the first one with the same chemicals and concentration whereas third damping-spraying we used to do if blowing-flowering will be extended due to the unsuitable weather conditions (cold period).

CALENDAR AND SPRAYING-DAMPING PROGRAMME FOR PEST AND DISEASE MANAGEMENT

Spraying Programme of Apple

First Year		
Phenologycal phases for apples	**Pest and disease**	**Chemicals and application dosage lit. or kg,%**
Bud Burst	Leaf aphids Worms of shoots Scabies	Folidol vaj 1 %
Sprout growth April	Scabies, powder mildew and aphids	Dodin 0,1 % Bayleton 0,05 % Rogor 0,1 %
Sprout growth May	Scabies, powder mildew, aphids, red-spider	Antracol 0,2 % Folimat 0,1 % Pinofon 0,2 %
Treatment in June	Scabies, aphids	Antracol BT 0,3 % Basudin 0,2 %
Second year		
Bud Burst	Scabies, Shoots warms, aphids	Antracol 0,25 % Folimat 0,1 %
Sprout growth April	Scabies, aphids, Powder mildew	Dodin 0,1 % Bayleton 0,05 % Rogor 0,1 %
Sprout growth May	Aphids, scabies	Antracol 0,2 % Sistemin 0,1%
Spraying in June	Aphids, powder mildew, red-spider, soil worms (Elateridae & Sarabaeidae)	Dodin 0,1 % Pinofon 0,2 % DDVP 0,2 %
Third year		
Winter spraying	Aspidiotus perniciosus, aphids, shoots worms.	Gebutox 0,75 %
Bud Burst	Aphids, shoot worms, scabies	Basudin 0,2 % Antracol 0,2 %
Flowering phase	Scabies, powder mildew	Antracol BT 0.2 %
Post-flowering	Scabies, powder mildew aphids, soil worms (Elateridae & Sarabaeidae)	Ditan M-45 0,2 % Metasystox 0,2 % Bayleton 0,1 %
Fruit formation phase	Scabies, powder mildew, apple worms	Antracol bakri 0,25% Gusation 0,2 % Bayleton 0,1 %
Fourth year		
Winter spraying	Aspidiotus perniciosus, aphids, Bud worms	Gebutox 0,75 %
Bud Burst	Scabies, powder mildew	Oksiklorur Cu 0,5 % Cosan 0,5 %
Flowering phase	Scabies, powder mildew	Antracol BT 0,2 % Dodin 0,1 %

Post- flowering treatment	Aphids, soil worms (Elateridae & Sarabaeidae) Scabies monilia	Folimat 0,1 % Antracol 0,2 %
Fruit formation	Scabies, monilia Apple worms Red – spider	Dithan 0,2% Zolone 0,2% Neoron 0,1%

Spraying Programme of Pear

First Year		
Phenological phases for pear	**Pest and disease**	**Chemicals and concentration dosage**
Bud Burst	Leaf aphids Shoots worms Scabies	Folidol oil 1 %
Growth of sprouts	Scabies, pock-marked, aphids	Dodin 0,1 % Rogor 0,1 %
Growth of sprouts May	Scabies, aphids, psylla	Antracol 0,25 % Folimat 0,1 %
Spraying in June	Scabies, pock-marked, aphids, psyllat	Antracol 0,2 % Basudin 0,2 %
Second year		
Bud Burst	Scabies, shoot worms, aphids	Dithan 0,25 % Folimat 0,1 %
Growth of sprouts Aprill	Scabies, aphids, psylla,	Dodin 0,1 % Rogor 0,1 %
Growth of sprouts May	Aphids, scabies	Antracol 0,2 % Sistemin 0,1%
Spraying in June	Aphids, scabies, Pock-marked, psylla, soil worms (Elateridae & Sarabaeidae)	Dodin 0,1 % Basudin 0,2 % DDVP 0,2 %
Third year		
Winter spraying	Aspidiotus perniciosus, aphids, shoot worms	Gebutox 0,75 %
Bud Burst	Aphids, shoot worms, scabies, psylla,	Basudin 0,2 % Antracol 0,2 %
Flowering phase	Scabies, pock-marked	Antracol 0.2 %
Post-flowering time	Scabies, psylla, Aphids, soil worms (Elateridae & Sarabaeidae)	Metasystox 0,1% Dodin 0.1%
Fruit formation phase	Scabies, pock-marked, pear worm	Antracol Cu 0,25% Gusation 0,2 %
Fourth year		
Winter spraying	Aspidiotus perniciosus, aphids, Shoot worms	Gebutox 0,75 %
Bud Burst	scabies, pock-marked, psylla	Oksiklorur Cu 0,5 % Basudin 0,2 %
Flowering phase	Scabies, pock-marked	Antracol Cu 0,2 % Dodin 0,1 %
Treatment after flowering	Psylla, aphids, Wasps Scabies, monilia	Folimat 0,15 % Antracol 0,2 %

Fruit formation phase	Scabies,monilia Pear worm Red- spider	Antracol 0,2 % Zolone 0,2% Neoron 0,1%

Spraying Programme of Quince

First Year		
Phenological phases for quince	**Pest and disease**	**Chemicals and application and dosage in lit. or kg,%**
Bud Burst	Aphids, shoot worms	Folidol vaj 0.5% ose Oleodiazinon
Growth of sprouts April	Leaf pock-marking and powder mildew	Antracol BT 0,35 % ose Baycor 0,1 %
Growth of sprouts May	Leaf pock-marking, powder mildew, aphids	Orthocid 0,25 % Bayleton 0,1 % Gusation 0,2 %
Spraying in June	Powder mildew, leaf pock-marking, aphids, spiders	Antracol 0.4% Cosan 0,4 % Neoron 0,1 % Sistemin 0,1 %
Second year		
Bud Burst	Shoot worms, aphids	Folidol vaj 0,5 %
Growth of sprouts Aprill	Powder mildew , leaf pock-marking	Bayleton 0,1 % Antracol 0,4 %
Growth of sprouts May	Powder mildew , leaf pock-marking, aphids	Dithan 0,3 % Bayleton 0,1 % Sistemin 0,1%
Spraying in June	Leaf pock-marking, Powder mildew, Spider	Antracol 0,3 % Bayleton 0,1 % Neoron 0,1 %
Third year		
Bud Burst	Leaf aphids, shoot worms	Folidol oil 0,5 %
Growth of sprouts Aprill	Powder mildew, leaf worms, aphids, pock-marking	Dodin 0.1% Rogor 0.1% Bayleton 0.1%
Growth of sprouts May	Powder mildew , leaf pock-marking, aphids	Antracol BT 0.3% Sistemin 0,1 %
Spraying in June	Powder mildew , pock-marking, aphids, spiders	Antracol 0.3% Gusation 0.2%
Fourth year		
Fruit burst	Shoot worms Leaf aphids	Folidol vaj 1%
Growth of sprouts April	Powder mildew, pock-marking, aphids	Dodin 0,1% Bayleton 0,1%
Growth of sprouts May	Powder mildew, pock-marking, Aphids, spiders	Antracol 0,3% Gusation 0,2%
Spraying in June	Powder mildew, monilia, Leaf aphids	Bayleton 0.1% Melprex 0,1% Sistemin 0,1%

Spraying Programme of Cherry

First Year		
Phenological phases for cherry	**Pest and disease**	**Chemicals and application dosage in lit. or kg,%**
Growth of one year sprouts	Leaf perforator, leaf pock-marking, Aphids	Dithan 0,2 % Kelthane 0,15 %
12-14 days after the first treatment	Leaf pock-marking, clasterosporium carpophilium, aphids	Benlate 0,1 % Folimat 0,1 %
12-15 days after the last treatment	Leaf pock-marking c. carpophylum	Dithan 0,2 %
Second Year		
Winter spraying in March before the vegetation period	Aspidiotus perniciosus and other kind of pests	Folidol oil 0,5%
Bud Burst	c.carpophylum Leaf pock-marking Spider	Dodin 0,1 % Kelthane 0,15 %
12-14 days after the first treatment	Leaf pock-marking, c.carpophylum, aphids	Benlate 0,1 % Folimat 0,1 %
12-15 days after the last treatment	c.carpophylum c.hiemalis , spiders	Dithan 0,25 % Metasystox 0,1 %
Third year		
Winter spraying , before the vegetation period	Winter form of the pests	Folidol vaj 0,5 %
Bud Burst	c.carpophylum Monilia, c.hyemalis	Benlate 0,1 %
Pheno-phase of leaves	c.carpophylum Monilia, spider	Dithan 0,25 % Kelthane 0,1%
10-15 days after the first treatment	c.carpophylum cocomyces, aphids	Dodin 0,1 % Folimat 0,1 %
12-15 days after the last treatment	cocomyces, c.carpophylum	Dithan 0,25 %

The program described above is for the main fruit crops cultivated in Kosova.

Ilustrations: ***Aspidiotus perniciosus*** *(1 and 2)*

Lecanium corni *(3 and 4)*
Diaspis leperei *(5)*
Lepidosaphes ulmi *(6)*

1—2 kalifornijska štitasta uš (Aspidiotus perniciosus): 1 zaražena grančica, na povećanom dijelu vidi se podignut štit s jedne uši, 2 zaražen plod jabuke. 3—4 šljivina štitasta uš (Lecanium corni): 3 odrasle uši na grani, 4 ličinke na grani tokom zime. 5 kruškina crvena štitasta uš (Diaspis leperei): na povećanom dijelu zaražene grančice je podignut štit s jedne uši. 6 jabučna korna uš (Lepidosaphes ulmi): zaražena grančica s povećanim dijelom.