DESCRIPTION OF THE PROJECT

2.1. The proof necessity of the project achievment. It's framing in the research priority domains of PNII. The objectives analyzes and anticipated advantages.

The potato is one of the most important crops in Romania. Over 270.000 ha are cultivated in each year. The National Institute of Research and Development for Potato and Sugar Beet Brasov, is a member of the Academy of Agricultural and Forestry Sciences from Romania and represents the largest research unity for potato from the country. Among other research activities are also the cultivation techniques, physiology, hybridization, virology, plant production and the elobaration control methods of the diseases. The hybridization or the new varities creation is one of the most important activities. As a result of these activities some varities have arised as follows: Roclas, Runica, Catelyna, Sucevita, Casin, Barsa, Teo, Christian, Dacia, Amelia;all the varities being well adapted to the cultural local conditions.

In Walonia, the potato crop represents aproxximately 20.000 ha. It represents an important economic activity, 70 % from the production being intented to the transformed in french fries, chips, starch and aproxximately 30% is destined to the vegetable market. The production is realized generally with old varities (60% up to 70% with the Bintje variety) or with new varities, introduced from neighbour countries. But all these varities are sensitive and even very sensitive at the late blight.

In the Western Europe but also in the East Europe late blight remains a great important problem. All the limitation endeavour of it's spread have stranded up to the present despite all control techniques which have been improved in the last 20 years.

The spraying (pulverization) techniques but especially the fungicide range have developed, the warning systems which allow a better adjustment of the control at developed parameters of the fungus have been adjusted and used, but all these measures couldn't beat the disease. The field infection is reccurent and can lead to very important economical losses.

The reason of these failure constitutes the extraordinary adaptation power of the fungus, but particulary the less virulence traditional populations with new agresive populations at the middle of the 70 years in Europe. On the other side, the failure must be assigned to the innovation absence in the resistance field of these varities in the last 30 years.

In the selection systems of these new varities, owing to the aspects regarding the productivity and the aptitude of these diversities to be coverted or used into precise sectors the aspects concerning the late blight have been ignored. Frequently it has been considered that these are not esssential, because the fungicids are at the producers disposal and enough effective to limit the negative effects of the disease, the demonstrated reasoning being a mistake at the time of the 2007 campaign in West Europe. Indeed the light blight has shown more than never the ravage which it can effect: despite of the intensive use of the fungicids , the most part of the production parcel has never been touched by the disease, creating significant losses. This reasoning is not only inexact but also the exigents are more and more rigid regarding the environment wich will lead to a restriction more or less important of the pesticide general use and the fungicides in particular.

Today it appears the esssential launching of the selection varities resistant to the late blight.

2.2. The references about the existent common interest of the partner countries for the proposed project and the explantion of the co-operation necessities with other research

equipments.

- **Expected effects in Romania:**

In the climatic conditions from Romania the protection against late blight represents 50% from the total mobility inputs for the potato crop. This significant economic effort laid-down by the potato producers is also in contradiction with the european tendency which aims to an important reduction of the pesticides use, for the purpose of the environment protection.
The potato varities creation resistent to late blight will allow:

- ❖ The breeding of the earning performance and the profit through the semnificative reducttion of the expenses which results from the crop protection
- ❖ The reduction of the negative impact on the environment as a result from the intensive fungicids utilization
- ❖ The potato quality breeding for the fresh consumption of the potato which will be continued to be processed

The new varities obtained in co-operation with the walloon partner will allow the high seed production quality, competitive on international device and will generate supplementary profits to the seed producers from Romania.
The achievement of this project together with the walloon partner creates a favourable frame to the genetic resources revaluation and the experience cumulated at the Institute from Brasov in the diversity creation field at the potato.
It will be maintained the strategic importance of the potato within the framework of the agriculture and economy from Romania.

- **Expected effects in Walonia-Bruxelles:**

The plans and the regulation regarding the utilization of agro-chemical substances use reduction are developing over all in Europe but as far as the potato is concerned and as things are standing at present, we can affirm that the semnificative reduction of the fungicid utilization will jeopardize more this culture: the pulverization or treatments must be frequent made because the most utilized varities are sensitive even very sensitive at late blight.
In consequence, only the variety selection in a certain sense of a more active research of the resistant genotypes will allow not only the pesticide use reduction but only their impact over the environment but to fight efficient against the late blight, the real disaster for the potato producers.
On the other side, the selection of the resistent varities at the late blight and their multiplication in exclusiveness by the plant producers will improve the revenue attracted by this activity. The proposal of new potato varities for the production participates to the maintaining of some agricultural, competitive and dynamic activities in Walonia.
Indeed, in the absence or of a quasi-absence of the activities regarding at new varieties creation in Walonia, the plant area remains too much dependent on the varieties multiplication without copyright (old varieties), less profitable activity. Besides, for this type of varieties, the Walloon multipliers are in competition with more important neighbor producers (Holland, France, Germany, and Scotland). The Walloon producer doesn't control in any case the prices since his production constitutes only a significant part from the total

production of this area.
All our neighbors are disposing of dynamic programs to create new varieties which allows them the total control over the market and prices. Far worse, the commerce societies (disposal of own varieties and situated for example in Holland) can develop unfavorable commercial practices to our producers without copyright: for example the favor of own varieties commercial development, including in the delivery contracts to the importers of these varieties from the Mediterranean basin a free seed quantity without copyright, so that the price will decrease at the multiplied varieties in Walonia.
The main objective is the dynamism of new potato varieties creation to support the seed potato production branch from Walonia: the new varieties branch disposal should improve on the market which is too much dependent on varieties without copyright.
EUCABLIGHT (European Concerted Action on Blight) is a network of European scientist people working at the problems regarding the late blight resistance and the characterization of the late blight populations; it has been created since February 2003. This network coordinates the research and development activities being already financed at national level; the main objective being the putting in common of data in view of the interpretation as well as the norm, procedure, methodologies, research instruments standardization.
A well structured data basis is already accessible with the purpose of allowing the spotters and genetics to compare and/or exploit the resistance sources in their selecting programs.
The data base includes a great variety source of European late blight as well as a characterized germplasm through the foliar resistance and tuber resistance to late blight.

The obtained expert opinion by the Agricultural System Section from Libramont and the Institute from Brasov as part of the present project as well as the collected data are perfectly inscribed in this measures and allow the integration in the EUCABLIGHT network.
In addition, the Agricultural System Section from Libramont is already in connection with the network, the main objective being the methodology harmonization used among our effort regarding the diversity sensibility at the late blight – to be conducted for some years – with those of the network.

2.3. The present level of the knowledge and experience in research on national and international plan in the partner countries in the proposed project field (it will be annexed a list with relevant bibliography, maximum 20 works)

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- Mike L.,Chiru S., Draica C., Popa D., Baciu A., 2004 - Promovarea in productie a soiurilor

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- Chiru S., Olteanu GH., 2007 – Oportunităţi şi pericole în cultura cartofului. În revista "Cartoful în România" vol. 17 nr. 1 pag. 26-34.

Walloon section:

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- Rolot JL, Seutin H (2001) – Aphids and seed potato fields: the impact of different means of struggle on their presence and on the spread of PVY (Potato Virus Y). *In* : Aphids in a New Millenium. Abstracts of the Vith International Symposium on Aphids, Rennes (Ed INRA).
- D. Haine and D. Michelante (2002).Late blight populations in Wallonia in 2000 : mating type, metalaxyl resistance, pathotypes and aggressiveness *Proceedings of the sixth workshop of an*

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