

# Late blight of potato: new generation of aggressiveness and integrated control

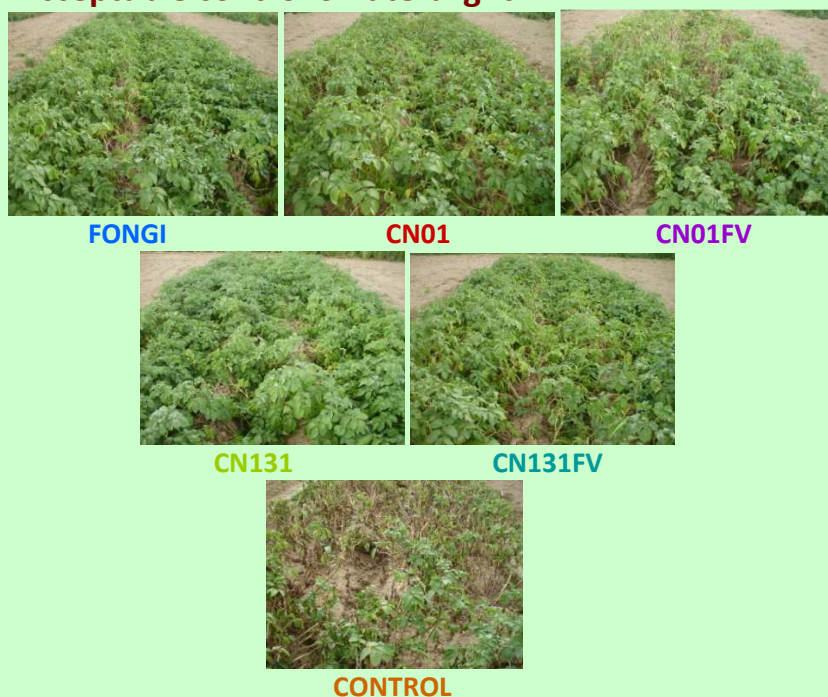
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*Phytophthora infestans* (Mont.) de Bary (1) causes late blight of potato and tomato and is one of the world's most devastating plant diseases. *P. infestans* caused the 19th century Irish Potato Famine, which led to the starvation and death of more than one million people and precipitated a massive human migration from Ireland to North America.

## Changes in Late blight populations - what could this mean?

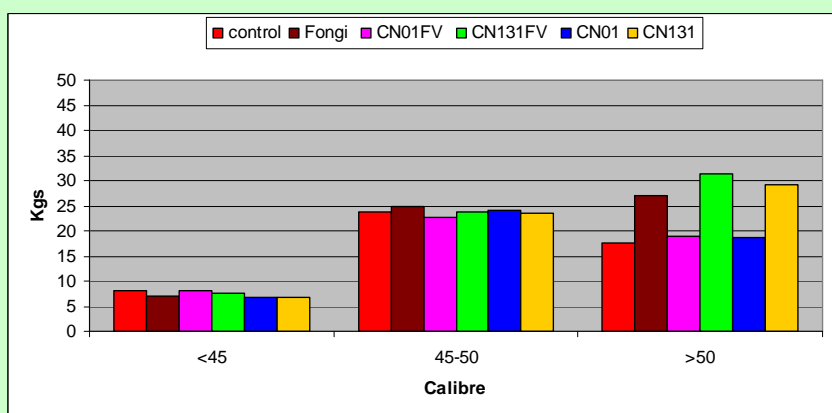
The introduction of the A2 mating type into Europe resulted in a shift from low to high nuclear genetic diversity particularly in places where both mating types were found together.(2, 3) As a result of this change in blight populations, the pathogen is more and more aggressive, the epidemics start earlier, the disease develop faster in the potato fields and resistance to late blight in the cultivars is not as effective as it used to be.(4) In addition to this *P. infestans* has also been able to infect alternative hosts also. Despite the introduction of more effective fungicides and improvements in the application technique the problems of controlling late blight are growing.

## Acceptable control of late blight



Encouraging results were obtained during various field trials with different types of formulations. The different formulations were tested on the late blight sensitive variety 'BINTJE'. This was to evaluate the correct efficacy of the new formulations in an integrated system against the evolving aggressiveness of the pathogen *P. infestans*. Two of the new formulations CN131 and CN131FV used in an integrated system showed results very similar to that obtained by the use of classical fungicides already homologated and commercialised specifically against the late blight pathogen. Applications of these new formulations in the integrated system shows a tremendous potential of reducing the input of fungicides while maintaining an acceptable control level of the disease of late blight caused by *P. infestans*. Changes in the pathogen biology with regards to critical factors such as temperature optima or infection efficiency can have significant effects on the validity of disease management systems. To maintain an acceptable system performance, it is necessary to have both qualitative and quantitative knowledge about changes in pathogen behaviour.

## Equivalent yield or harvest

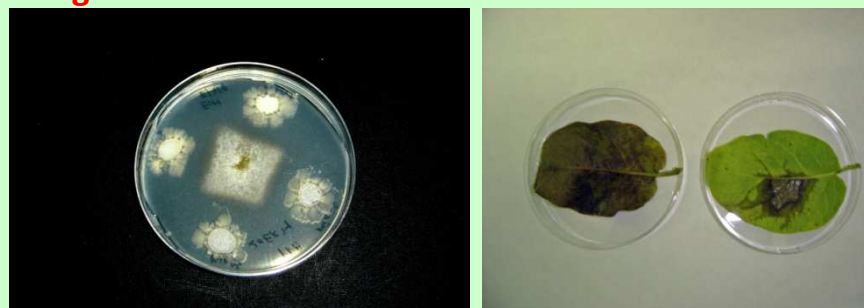


Often it has been remarked that the use of alternative methods for the control of the diseases results in a sharp drop in the harvest or yield capacity of a crop culture. The use of these new formulations in an integrated system showed the harvest capacity or the yield of the crop

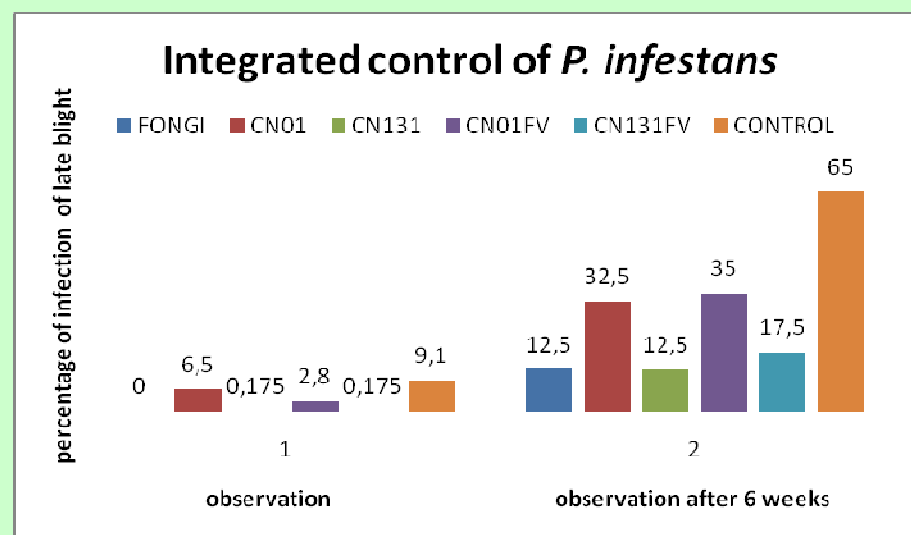
With the immense economic value of the culture of potatoes and increasing demand for quality by the consumer, time has come to reorient the existing procedures to give a true response to the problems of the culture of potatoes.

To meet the real need for the treatments, it is now high time to seek new methods and alternative treatments rather than to continue the chemical treatment which is sometimes abusive for the culture, the environment and human health.

## Integrated control



Use of a cocktail of microorganismes to control the late blight pathogen *P. infestans*



culture to be almost as good as what we obtain through the classical system.

## REFERENCES

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