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COSTS AND SOME PROBLEMS TO SOLVE

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COSTS AND SOME PROBLEMS TO SOLVE

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Costs
The aim of this brief contribution is just to point out some questions about two topics: costs, cost of equipment and cost of materials, and unsolved problems. We will mostly focus our discussion in a general way as we found most of this troubles in all crops analysed in our lab and other "labs managed by government entities".

The first item has an extreme importance in our country and many of the countries that have adhered UPOV Convention but are, what we could call, "technology dependant countries". What we try to mean is that we need to import most of the drugs and lab equipment and this has critic consequences in two main aspects: the cost itself and the time needed for this, in many cases, burocrathic process.

In the case of Argentina, there are some import duties exempted labs but this is only in the case of research labs. Our lab, that is now part of the Argentine Secretary of Agriculture, Cattle, Fisheries and Food, is not considered a research lab and so has to pay the usual taxes. In addition, is necessary to consider the shipping costs.

Just to illustrate this point, we present a table where we show the prices of a few drugs, enzymes and equipment, which are needed in almost all molecular techniques, in their country of origin and the price we have to pay to get this stuff in our lab:

product	price in origin	price in our lab	country of origin	time consumed
seed grinder	U$ 4,300	U$ 7,164	Sweden	30 to 60 days
PCR machine(1)	U$ 2,995	U$ 4,212	USA	60 days
taq pol.(2)	U$ 110	U$ 197	USA	60 days
acrylamide(3)	U$ 136.4	U$ 389.6	USA	60 days
Temed(3)	U$ 75.8	U$ 216.85	USA	60 days
urea(3)	U$ 55	U$ 156,8	USA	60 days

(1) Perkin-Elmer, model with hot bonnet, 25 wells x 0,2 ml; (2) Perkin-Elmer 500 U; (3) Sigma, molecular grade.

As it can be clearly appreciated, there are cases in which the prices paid are 50% to 200% higher.

If we also take into account that the budget that we manage is much less than in many other countries, we have serious difficulties to think in more complex techniques like SNP. The routine usage of certain techniques is not available for us.

The second item is related to the time needed for the importation of the equipment and drugs. Regarding drugs and enzymes, there are some companies that keep stocks in our country so that there is no time lag between the placement of the order and the moment you get it in the lab. But, in many cases, and for special trademarks, like the case of Sygma products, it is necessary to wait sometimes months to obtain the product. Unfortunately, in the way we have to deal with our budgets, it is not always possible to purchase in advance, and this is an important cause of delays.

The purchase of equipment is more complex, for in most of the cases, they are specially imported. This is not only for the equip itself but also in the case where replacement parts are required which make the technical services sometimes very slow or even useless.

Some Problems to Solve

This has to do with the last topic from the Working Program, regarding “Possible impacts of the introduction and unsolved problems”.

Most of our experience in molecular techniques has to do with microsatellites and AFLP, run in sequencing gels and silver stained, mainly for identification purposes. In every case it is possible we prefer to choose SSR because of the consistency of results, simplicity of reaction and, in certain crops, enough variability between varieties which make them a useful tool for identification.

When SSR are not available or the amount of variability is not enough, we face the use of AFLP. There are several problems we have to deal with concerning the use of AFLP and in comparison with SSR:

- the DNA quality (phenol treated DNA gives better results)
- repeatability of results dew to staining differences
- reliability between laboratories

Repeatability of results dew to staining differences: we have not yet been able to standardise conditions in order to obtain good results in each gel. We sometimes find “less stained zones”, like circles in the middle of the gel, which make impossible to read the area. We also find with some frequency pale stained gels where some bands are lost. The quality of drugs, water and DNA has been checked but results seem not to depend on that in a constant way.

Reliability between laboratories: our short experience in maize (a collaboration work with Geves) shows that even though there is no doubt for certain strongly stained bands, there are important differences in the staining quality which makes difficult the comparison of many bands.

On the contrary, SSR showed consistency between laboratories and in most of the cases results were identical (over 90%, probably due to small differences in measuring).

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