

TECHNICAL PAPERS

AGRICULTURAL SCIENCES DIVISION

RESEARCH (R&D) AGENDA OF U.P. MINDANAO

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ABSTRACT

Research in U.P. Mindanao shall address the agricultural and natural resources system as a whole – the planning, production, harvesting, post-harvest processing, distribution, and marketing instead of the traditional approach of studying the elements and processes separately. Further, the R&D agenda should be guided by the philosophy of prudent and developmental use of natural resources and sustainable management of the environment.

DEVELOPMENT, SELECTION, AND ADOPTION OF LATE BLIGHT RESISTANT POTATO VARIETIES IN THE PHILIPPINE HIGHLANDS

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ABSTRACT

Late blight caused by *Phytophthora infestans* is the most devastating foliage disease of potato in the world including the traditional growing areas in the Philippines. Farmers spend as much as 12% to 25% of their total production cost to

fungicide alone; spraying 10-15 times in a 60- to 90-day growing period. During the rainy season, a more intensive fungicide spraying (as close as 2- to 3-day intervals) is generally practiced by farmers on susceptible varieties. The use of resistant varieties is still the cheapest and safest means of control.

Evaluation of potato germplasm for resistance to late blight started in 1982 using materials mostly from the International Potato Center (CIP). On-farm screening trials were conducted with the farmers' active participation during selection, resulting in recommendation of two varieties officially released in 1985. Three cycles of recurrent selection resulted in another from CIP in 1995. The advantages of using the recommended late blight resistant varieties compared to using the susceptible Granola, which is the most popular variety, are presented.

The different on-going activities to promote and increase farmers' adoption of the late blight resistant varieties are also discussed.

STRATEGIES TO DELAY SENESCENCE IN PERISHABLE CROPS

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ABSTRACT

Ripening in fruits, chlorophyll and protein degradation in leafy tissues, as well as fading and petal abscission in flowers are senescent processes which can be inhibited to extend the marketable life of high value crops. Approaches involve the inhibition of ethylene production, the use of ethylene antagonists, and the inhibition of ethylene-mediated processes.

Studies on the extension of postharvest life of durian, mango, papaya, broccoli, and orchids are presented. Strategies involve the manipulation of harvest maturity, use of modified atmosphere storage, reduction of ethylene below threshold levels with the use of an adsorbent, and application of an ethylene antagonist, norbornadiene. Commercial implications are discussed.