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ECONOMIC BENEFIT OF CROP PROTECTION PRODUCTS

A new study released by the US based Council for Agricultural Science and Technology (CAST), titled *The Contributions of Pesticides to Pest Management in Meeting the Global Need for Food Production by 2050*, concludes that the use of pesticides in the US and elsewhere has provided a very significant direct return on investment.

The economic benefits were measured in the form of income generated by the technologies plus the additional benefit of enhanced employment and contribution to trade balances. The authors of the study were Stephen C Weller (Purdue University); Albert K Culbreath, (University of Georgia), Leonard Gianessi (CropLife Foundation, the research and stewardship arm of CropLife America) and Larry D Godfrey (University of California, Davis). The 28 page report details the benefits from crop protection products based on an exhaustive review of literature from many countries and going back to the first use of agrochemicals.

The study looked at fungicide use and its impact, herbicide use (weed management and higher yields that have resulted from sound weed control practices), arthropod management involving insecticide use, the development of current and future effective practices and finally overall pesticide benefits in both the developing and developed world.

Most notable in the findings was data reported by Mr Gianessi for CropLife. This was based on data collected from the 50 US states using information from 18 different field crops, 26 vegetable crops and 38 fruit and nut crops. The benefits measured included increased crop yield and quality, a reduced workload for managing pests, and improved prospects for the long term sustainability of food production. In terms of the economic benefit from the extra crop returns it was calculated to be an additional \$51.4 billion derived from the use in field crops, \$18.9 billion in fruit and nuts, and \$11.5 billion in vegetables, making a total of approximately \$82 billion in added crop value.

In the case of US field crops the \$51.4 billion value of production attributed to the impact of crop protection products represented 36% of the \$141.3 billion total value. Herbicides had the greatest impact. Farmers also achieved an impressive return on their insecticide use - \$19 in production value for every \$1 spent.

The study also examined the benefits of pesticide use in developing countries citing case study examples based on rice, peanuts and cassava. Statistical data showed that pesticide use in developing countries has a 'very favourable cost/benefit ratio'. The authors also conclude that the use of crop protection products should be measured not just by their direct benefit but how they enable improved agronomic methods such as minimum tillage to be adopted.

In 1993 the US National Academy of Sciences, in a report concluded that 'when effectively applied' pesticides contribute to dramatic increases in yields for most major fruit and vegetable crops, leading to substantial improvements in the quantity and variety of the US diet and thus in the health of the public. The authors of the CAST study would today change 'when effectively applied' to 'when integrated into a comprehensive approach to agriculture that uses all tools available to meet the needs for food production to feed the nine billion humans on the earth in 2050.'
