

# **Title: A critical appraisal of the economic impact of plant variety protection**

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## **Abstract**

Economist analysing intellectual property rights in plant genetic resources (i.e. plant variety rights) tend to be less theoretically sophisticated in comparison to their peers studying patents. In addition, their contributions can similarly be criticised for adopting a ‘pipeline model’ of the innovation process, i.e. separable into distinct inputs (R&D) and outputs (new products). This paper develops upon the evolutionary economists’ critique of this approach by focussing on the plant breeding.

Empirical analysis of the economic impact of plant variety rights tends to concentrate on two indicators: R&D expenditures and number of varieties released. These two indicators respectively represent the input and the output side of the innovation process. Implicit in this approach is the belief that the availability of property rights is an incentive to private investment in plant breeding, which is otherwise a non-appropriable activity. Accordingly, empirical evidence is presented to support the claim that increases in private investment in plant breeding lead to an increase in the number of varieties released annually.

The paper critiques this presumption from two different angles. First, it contends that economists have failed to adequately conceptualise the innovation process in plant breeding. Breeding new varieties depends on a range of different activities and opportunities, many of which are performed in, and supported by, the public sector. Consequently, changes in the pattern of R&D expenditures over time need to acknowledge developments in science (i.e. new techno-economic opportunities), appropriability conditions and demand. Second, an exclusive focus on the rate of release of new varieties as an indicator of the ‘impact’ of property rights obfuscates deeper methodological issues. These issues include an assessment of the quality of new varieties (i.e. more is not an economic good in itself) and appropriability strategies adopted by corporate breeder. For example, with respect to appropriation strategies, analysis presented in the paper suggests that breeders pursue strategies of planned obsolescence that manifest in developing new varieties with reduced durability. As such, the claim that availability of plant variety protection has had a positive economic impact on plant breeding is not conclusive.