

Regulation of Riparian Buffer Strips: Land Allocation and Opportunity Costs

by

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Abstract: Current agricultural regulation in Denmark requires that all farmers establish buffer strips with a fixed width of 9 meters along all watercourses and lakes with a surface area larger than 100 m². The existing economic literature on buffer strips does not incorporate the choice of land allocation between agricultural production and buffer strips. Including this land allocation choice in a model implies that an opportunity cost of land used for agricultural production exists, reflecting the value of land used for buffer strips. Using a theoretical model, we show that the current general regulation approach does not secure a socio-economic optimal allocation of land, and we investigate alternative regulatory instruments for reaching optimal land allocation between agricultural production and buffer strips given three different sets of assumptions in the theoretical model. Firstly, assuming only one land quality, one crop and no pollution from agricultural production, we find that a tax on land used for agricultural production or a subsidy on land used for buffer strips can secure an optimal land allocation. Secondly, increasing the level of realism by assuming heterogeneous land quality and several crops, differentiated taxes or subsidies on land use are necessary. Thirdly, increasing realism even further by assuming that agricultural production generates pollution, we show that both a tax or a subsidy on land use as well as a tax on pollution is necessary.

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