

Surat Silsorn 2007: Feasibility in Producing Oil from Physic Nut to Substitute Diesel Oil in the Community Level. Master of Science (Resource Management), Major Field: Resource Management, Interdisciplinary Graduate Program. Thesis Advisor: Assistant Professor Suwanna Praneetvatakul, Ph.D. 166 pages.

Physic nut is an energy crop, which can be used to substitute diesel oil in small farm machines. Thus, government agencies have promoted the production of physic nuts in communities to enhance the sufficiency economy. This research had the objectives to study the plantation management of physic nuts, and technical and environment at aspect of physic nut oil, including the economic worth analysis on the production of physic nut oil with the purpose to substitute of diesel oil. The data of this research were collected from two sample groups consisting of 17 farmers growing physic nuts in community enterprises in Rayong province and 20 farmers growing physic nuts in Sriprachan community, Suphanburi province. The investment project period is 10 years and at a discount rate of 5 % per year.

The research results from the study on the community enterprises in Rayong province found that most farmers grew physic nuts on vacant farm lands. As most farmers grow fruits and tree crops with the help of tractors, the physic nut oil could not be used directly but had to be produced as bio-diesel first. According to the economic worth analysis of the bio-diesel project, the project at Rayong could not earn any profit as the net present value was -3,065,452.25. Concerning the research results in Sriprachan community, Suphanburi province, most farmers also grew physic nuts in vacant farm lands of paddy fields. Most farmers grew paddy rice and used diesel oil for farm machines in the amount of 2,968,416.72 liters per year. However, only 0.032% of the physic nut oil produced in the community could substitute the diesel oil. According to the economic worth analysis of the physic nut oil project, the project at Suphanburi could not earn any profit as the net present value was -1,083,059.13. In terms of the project sensitivity analysis, both projects would be profitable only when 30% of the physic nuts were sold.

The research results indicated that the production of physic nut oil to substitute diesel oil consumption had low feasibility due to the high production costs, areas appropriate for other profitable plants and insufficiency of physic nuts. However, the projects will be economically feasible when the farmers and communities can produce and sell physic nuts seeding together with extracted oil or when machines will be used instead of human labor.

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