

## Current Harvesting Methods for *Jatropha curcas* L.

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**Abstract :** In the last decade *Jatropha curcas* L. (an oleaginous crop native to Central America and part of South America) has raised particular interest owing to its properties and uses. Its capsules may contain up to 40% in oil and can be used as feedstock for biodiesel production. The harvesting phase is made difficult by the physiological traits of the specie, because fruits are in bunches and do not ripen simultaneously. Three harvesting methodologies are currently diffused and differ for the level of mechanization applied: manual picking, semi-mechanical harvesting, and mechanical harvesting. The manual picking is the most common in the developing countries but it is also the most time consuming and inefficient. Mechanical harvesting carried out with modified grape harvesters has the higher productivity, but it is very costly as initial investment and requires appropriate schemes of cultivation. The semi-mechanical harvesting method is achieved with shaker tools employed to facilitate the fruit detachment. This system resulted much cheaper than the fully mechanized one and quite flexible for small and medium scale applications, but it still requires adjustments for improving the productive performance. CRA-ING, within the European project Jatromed (<http://www.jatromed.aua.gr>) has carried out preliminary studies on the applicability of such approach, adapting an olive shaker to harvest *Jatropha* fruits. The work is a survey of the harvesting methods currently available for *Jatropha*, show the pros and cons of each system, and highlighting the criteria to be considered for choosing one respect another. The harvesting of *Jatropha curcas* L. remains a big constrains for the spread of the species as energy crop. The approach pursued by CRA-ING can be considered a good compromise between the fully mechanized harvesters and the exclusive manual intervention. It is an attempt to promote a sustainable mechanization suited to the social context of developing countries by encouraging the concrete involvement of local populations.

**Keywords :** *jatropha curcas*, energy crop, harvesting, central america, south america

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