

## THE FOBRO LIFTER - SHAKER

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**ABSTRACT:** The Model 1500 Fobro Lifter-Shaker is a newcomer to the nursery industry in the United States. It has been used successfully at the Augusta Forestry Center in Virginia to harvest 2-0 Eastern White pine as well as other seedlings

The Fobro Lifter-Shaker is an excellent machine to remove certain seedlings from light to very heavy soils. It works in adverse conditions, but, of course, does better in the ideal situation. The Lifter-shaker is light in weight and can be used with almost any 45-85 hp farm tractor. However, 55-70 hp is best suited because of the hydraulic lift capability. The machine is designed to work in a typically laid out nursery, or one with six foot path centers. Furthermore, it is important to note that the machine only removes the seedlings from the soil - the actual handling of the seedlings is still by hand. No damage to seedlings has been observed when it is used under reasonable soil conditions; on the other hand, the machine will do damage when the soil is saturated with water or frozen.

The Fobro is virtually trouble-free except for an occasional broken bolt or loose part. The machine should be checked for loose bolts at least four times in an eight hour day. Fifteen million 2-0 white pine seedlings could be removed from the soil with this \$8,000 machine without a major overhaul. This is very good. It appears that a complete re-building could cost 4 to 5 thousand dollars.

Few nurserymen are ever satisfied with a machine as it comes from the factory, and Virginians are no exception. The shaker bars were extended to the rear sixteen inches. This was done by welding a piece of Grayco Harvester shaker chain to each bar. The rear of the shaker chain bar was dropped five inches. In so doing, the number of lifting days was increased by 80 to 100%. Moreover, in checking the root collars of the seedlings at the end of the original factory bar, (in a wet soil condition), soil could be found clinging to each collar. A check at the end of the added round bar showed no soil left at all. No apparent damage is done to the seedlings by this addition, and the five inch downward drop of the bar allows the seedlings to slide off in a reasonable order.

Hand-lifting newly shaken seedlings is a back-breaking, labor-intensive task. Virginia designed a combine that lifts the seedlings up onto a work area. Here the seedlings are packed into "slings" or canvas wrappers - boxes, tubs or crates could be used just as easily. Important, too, the seedlings in the work area are in good order. Furthermore, the Fobro, extended bar, combine, Hydro tractor, and ten men can regularly shake, lift, pack, and deliver to

the packing house 350 to 500 thousand 2-0 white pine seedlings in an eight hour work period - actual work time is about 6 1/2 hours. The lifter can be operated at a ground speed of 1 to 25 feet per minute. Hence, a slow speed or gear reduction tractor is ideal for this machine. The International Hydro-70 works great. A Ford or SAME equipped with gear reduction might be the two next best tractors.

The State of Virginia added the combine, but at the same time left the lifter flexible. The Fobro can be used by itself or with the combine; change-over takes only two or three minutes. Just pull one pin and unhook two hydraulic connections. A hitch was welded to the Fobro frame which consists of a typical farm tractor utility bar and some angle iron - this permits the equipment to turn left and right, and up and down. The combine is constructed of Grayco Harvester parts. The long shaker chain and roller parts are very nearly perfect for this use. The total cost of conversion was alot of welding and a thousand dollars of metal. The Virginia combine can be reduced in size and weight. Fobro manufactures a combine.

After two seasons of use, the original Virginia combine shows very little wear - one welded seam broke. No blueprint or drawing is available. The Fobro Lifter-Shaker, when used with additions, is a "God Send" to the nursery with heavy soils and a number of odd species to harvest.