

Mention has previously been made of the ability of several species of new-born animals, including foals, to absorb protective substances from colostrum fed within the first 48 hours after birth. Experimental evidence on the relation between degree of protection achieved and the age of young animals is limited. Yet, logically, the earlier a foal receives the protective substances in the colostrum or serum, the smaller the quantities required for efficient protection. The small number of animals used thus far in experimental work on this subject and the conditions of exposure do not warrant broad conclusions or recommendations involving the use of horse serum in raising colts. Besides, the limited facilities and the cost of obtaining adequate quantities of the serum will scarcely justify its present use for orphan foals of ordinary grade. However, in the case of valuable foals for which no colostrum is available, the information here presented suggests a promising means of protection against the ills of early life. The services and advice of a qualified veterinarian are advisable in obtaining and administering the serum.

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**F**OREST Fires in Florida Are Fought with Water and Motorized Equipment The national forests of Florida are highly inflammable because of the character of the ground cover and the common occurrence of relatively high temperatures, low humidity, and strong winds. These last three factors, and the sandy soil tend to diminish the effect of a heavy annual rainfall. Forest fires once started spread with great rapidity. They are usually driven forward by strong winds and make a "run" in a narrow strip a mile or more in length, often developing two or more "heads" or "leads."

The forests are situated in an area of virtually level terrain, and it is possible to drive an automobile or truck through the woods in most places. Longleaf pine is the predominating timber species, with slash pine found on the moist or "pond" sites, which afford the forest protection from repeated fires. In these generally open stands of pine the ground cover consists of grass, scrubby oaks, and an accumulation of oak leaves and pine needles of varying density, depending on the frequency with which a given area has been burned over.

Fires for the most part are confined to small areas because of the prompt discovery made possible by strategically located look-out towers from 80 to 100 feet high. In these towers look-out men, the eyes of the fire-protective organization, are constantly vigilant during periods of probable fire occurrence. They discover the first wisp of smoke and telephone the alarm. Fire fighters and equipment are immediately dispatched to the scene of the fire.

To meet the demand for rapid action in suppressing fires, the forests are gradually being gridironed with roads, motorways, and firebreaks. In spite of these improvements, however, a fire, given favorable conditions, will make a terrific run and jump the firebreaks. In this case the "head" must be stopped at all costs. Once the "head" is stopped, the flanks are relatively easy to extinguish.

During the last decade the use of water and motorized equipment has come to be recognized as an invaluable aid in fire suppression.

Forest officers of the Choctawhatchee, Ocala, and Osceola National Forests in Florida, have developed fire trucks equipped with 250- to 300-gallon water tanks, pumps, and hose (fig. 52). The pumps are so operated by the truck motor that water is pumped while the truck is either in motion or stationary. Each truck carries 50 feet of rubber garden hose with small nozzle. The pumps can be used to supply the hose or to fill the water tank from a nearby creek or pond by means of a suction hose. The



FIGURE 52.—One and a half ton truck equipped with 240-gallon water tank, plunger-type force pump operated from power take-off to truck transmission, six back-pack spray cans, drinking water, and 12-man tool outfit.

trucks are equipped with heavy bumpers and heavy-duty tires, and light armor protects those parts most liable to injury from saplings, stumps, and snags. Two or three men are assigned to each truck. A truck driver operates the pump while he drives the truck; a nozzle man walks or trots ahead of the truck and directs the stream

of water directly on the flames (at times this man literally wades in fire), and a nozzle-man's helper keeps the hose free from entanglements.

With this equipment it has proved possible to break the "head" of a fire by the application of water, which cools down the fire sufficiently to allow fire fighters to attack it directly, or build a fire line close to the flames. Water is not depended upon for 100-percent extinguishing, but is used only as an aid to manpower, as the amount of water available is limited to the capacity of the tank on the truck. Every gallon must be utilized to the maximum, and great responsibility rests on the nozzle man, who must be well trained and experienced.

Once the head of the fire is checked, the trucks turn to the flanks. Here, followed closely by fire fighters equipped with rakes and special tools, the truck crew cools off the hot line, so that the fire fighters can attack the fire directly. The easily accessible terrain permits the truck to follow the burning fire line through the forest. Small scrubby oak and small pine saplings are pushed over by the heavy bumper as the truck plows its way through the brush. There is much dodging and maneuvering of stumps and logs, but truck crews know their job.

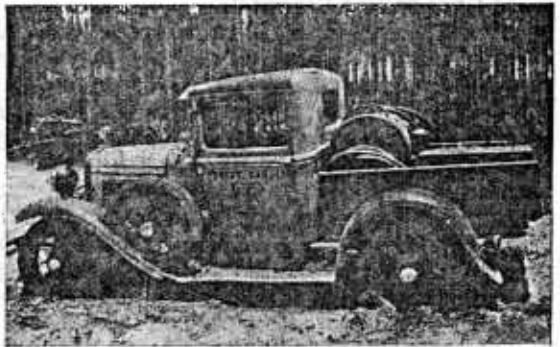


FIGURE 53.—One half ton truck equipped with 50- to 60-gallon water drum, a hand force pump, 5-gallon back-pack pump, tool box, and miscellaneous tools.

Occasionally forest officers are required to combat a fire with a "head" so wide and traveling so rapidly that a direct attack is impossible. In such cases the fire fighters choose as a defensive line a road, motorway, or previously constructed firebreak from which to back-fire. In back-firing care must be exercised to prevent the back-fire from getting out of control. Here again the tank truck plays an important role by aiding in preventing the back-fire from spreading in the wrong direction. The back-fire must burn against the wind into the oncoming conflagration. Thus one fights fire with fire.

Under some conditions previously prepared defensive lines are not available and light tractors with disk plows or light graders are rushed to the scene on a large motor truck and trailer. This equipment is unloaded, and a fire line is plowed in advance of the spreading flames, and the back-fire is started. The tractor and plow are often capable of suppressing the flank of a fire by plowing one furrow very close to the burning edge of the fire.

In all phases of fire suppression in the Florida national forests motorized equipment is playing an important part (fig. 53). It is especially adaptable to Florida conditions and great possibilities exist for the extension and development of its use.

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**F**ORESTS Helped by Thinnings Made under "Free Use" Provision Free use of dead, down, and insect-infested timber and material from thinnings on the national forests is granted to settlers, miners, and other residents for firewood, fencing, and domestic purposes, by regulations of the Department of Agriculture. Large numbers of farmers located within the Black Hills and



FIGURE 54.—Men of the Civilian Conservation Corps thinning a stand of ponderosa pine.