

## Efficiently running tractors: quieter operation on the farm

Few people who see powerful modern tractors working would ever think of comparing a ride in a family car to riding in such machinery.

Actually, the family car might come out on the bottom in comparison with the Model 7000 tractor from the Allis-Chalmers Corp., which was recently rated as having the lowest sound level of any two-wheel drive tractor in production.

Allis-Chalmers said that the 106 PTO horsepower Model 7000 tractor achieved a sound level reading of 76.5 dB (A) at 100 percent load in independent, nationally recognized tests.

The sound level is measured inside the tractor cab while the machine is operated at maximum power.

### Low sound levels

Allis-Chalmers has continuously led the industry for low sound levels for high horsepower tractors. When the Models 7030 and 7050 tractors were introduced in 1973, they were the first tractors to break the 80 dB (A) level. Then in 1975, the Models 7040 and 7060 improved on the cab sound levels by a full decibel.

"The noise level in a normal busy office is about 75 dB (A), and we're not far from that," E.W. "Swede" Muehlhausen,

manager of merchandising for the company's Tractor Group, commented.

"That factor—that quiet operating environment—is extremely important when you realize that farmers often spend 12 to 16 hours or more inside a tractor cab. During planting and harvest seasons farmers practically live inside their tractors."

Tractor cab sound levels are critical of the fatigue level of the operator. "An operator becomes tired faster in a noisy cab and thus becomes less effective," Muehlhausen states, "and that can cut into the farmer's income."

### Take precautions

"It may result in taking longer to prepare land, improper planting of seed or poor cultivation. That can mean greater fuel expenditure, inconsistent germination of plants, heavy growths of weeds, soil or water loss, or just plain having to do the field over again.

"So we're talking about more than just cutting into the farmer's income, we're also talking about affecting consumers and our environment."

Achieving a sound level as low as 76.5 did not take place overnight. Development of a quiet cab and tractor design began over seven years ago

when the Acousta cab I went on the drawing boards.

The Acousta cab I was introduced with the Models 7030 and 7050 tractors in 1973. Ever since that introduction, the company's engineers looked for new ways to insulate tractor operators from outside noise.

Refinements were continually being made in the tractor that helped eliminate noise and, in 1977, the Acousta cab II was introduced for the line of high horsepower Allis-Chalmers two-wheel-drive tractors, including the Model 7000 in 1978.

Tractor structural characteristics help reduce the noise level. For example, a wet clutch provides easy gear engagement as well as eliminating one structural tie that could transmit noise.

### Specially designed

Other structural design characteristics also help control noise transmission from the engine and power train.

The Acousta cab II is independently mounted on rubber pads to eliminate metal to metal contact and thus avoid noise transmission and shock.

The cab is constructed of non-parallel surfaces to reduce sound reverberations and large surfaces are made of heavy gauge steel to control natural vibrations.

Diagonal gussets on selected frame members control transient resonant noise and vibrations.

### Heavy insulation

A combination of heavy foam blocks, fiberglass insulation and acoustical foam is used for the sound and vibration absorption inside the cab and in the control module.

The insulation is heaviest in the cab roof, the floor and in the fire wall separating the operator from the tractor engine and chassis.

One of the keys to minimum noise levels is the use of flexible control cables. Flexible cables control noise transmission and allow holes commonly found around conventional control devices to be sealed.

Sealing of these holes also ensures more uniform pressurization. The control console has also been filled with snug fitting acoustical foam that further dampens noise.

A seemingly insignificant but very important modification with the 7000 Acousta cab II is a change from steel to cast iron foot pedals.

The cast iron significantly reduced transmitted noise and vibration because of the porous nature of cast iron as opposed to steel.

Besides being quiet, the

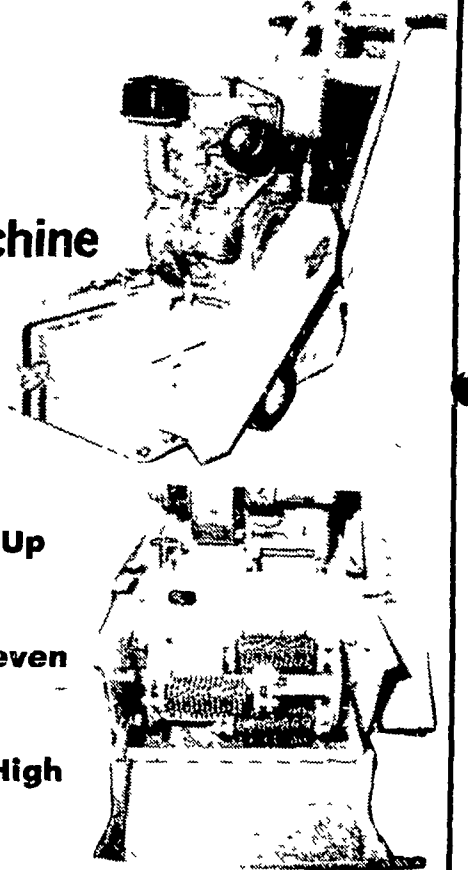
cabs have been built for comfort and convenience. They have 72 cu. ft. of interior enclosed by 41 sq. ft. of flat, tinted, tempered glass for all around visibility.

Air intake ducts are located at top and at the sides of the cab, away from engine noise. This positioning also allows cleaner air into the cab.

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## Food additive terms defined

**MEDIA** — The terms "enrichment" and "fortification" have been part of the food industry for a long time. But these terms still create confusion among many consumers. The enrichment process replaces nutrients lost during the processing and refining of food. Enrichment of flour, bread, rice, cereal, cornmeal, spaghetti and macaroni products refers to the addition of the B vitamins (thiamine, riboflavin and niacin) and the mineral iron. There is no need to enrich whole-grain foods such as whole wheat bread and flour since they contain their original nutrients naturally.

Fortification goes a step

beyond enrichment. In this process, a nutrient is added that was not originally present in the food or that was present in a smaller amount, such as vitamin D milk, vitamin A fortified margarine, iodized salt and fruit drinks with vitamin C added. Certain bread and cereal products are fortified with extra vitamins and minerals. Better quality protein sources are obtained by fortifying some products with certain amino acids. In some communities, the drinking water is fortified with fluoride.

In short, fortification helps to supply nutrients that would otherwise be hard for

some people to get in their regular diets.

Enrichment and fortification have both played an important role in improving nutrition in the United States. However, the federal Food and Drug Administration does limit the amount of nutrients that can be added to foods. Without limits, food companies might compete with each other to see who could come up with the most nutritionally complete

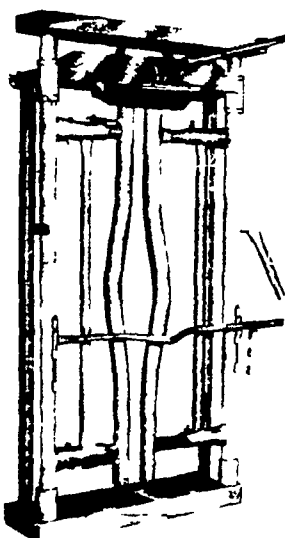
super-food. Such all-purpose superfoods are not necessary for people who eat a variety of nutritious foods.

Be in the know. Read the label to determine whether a food is enriched or fortified and what nutrients have been added.

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For a quick supper dish, make your favorite macaroni and cheese, but give it some different flavor tricks such as green pepper or onion sauteed in butter, chopped pimiento or canned, drained and flaked tuna.

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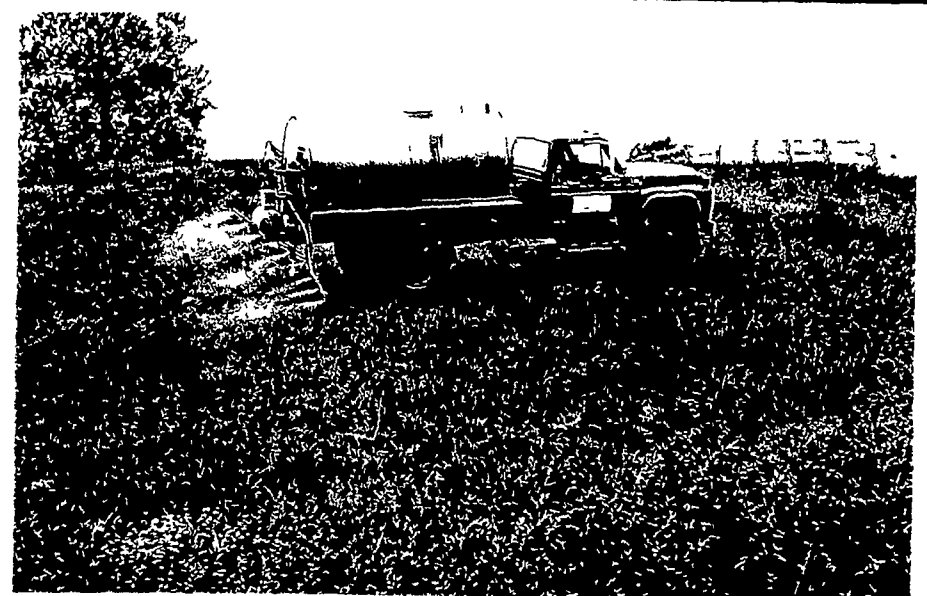
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