

Tread Lightly

by Matt Hagny

TECHNIQUE

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Out of necessity, spraying activities often are conducted under adverse conditions, such as when soils are damp. Sprayers keep getting bigger, which isn't a bad thing so long as the heavier loads are carried properly. The table on p. 407 shows the weight of the most compacting axle of common sprayers (both front and rear are shown for Apaches) with selected tire options (usually the widest and narrowest offered by the manufacturer) as well as a few larger aftermarket tires that producers have chosen in attempting to minimize field rutting and deep compaction.

For comparison, 'proper' inflation pressures have been calculated (see table notes). The force exerted on the soil ("ground contact pressure") is always within 5 – 10% of the *proper* tire inflation pressure. (Decreasing infla-

tion pressure below recommended won't reduce the tire's ground pressure further, but over-inflating certainly can cause higher ground pressures because the footprint shrinks. However, extreme *over*-inflation pressures will not be a good estimate of contact pressure because the footprint can only shrink so much.) The values reported are 'worst case' scenarios: fully loaded with liquid nitrogen, fuel, etc. (water instead of UAN drops the inflation needed slightly). Limiting top-end transport speeds while loaded allows reduced inflation.

The majority of these pressures are well into the danger zone for causing severe soil damage and rutting even in modestly damp conditions, as well as inducing erosion when water runs down the wheel tracks on slopes. For comparison, humans walking have contact pressures of