Media Notes
for North Carolina Growers

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Ground Rubber: Potential Toxicity to Plants

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In an effort to find materials to supplement pine-bark media, some growers have considered using ground rubber from recycled tires. Ground rubber is free of most disease pathogens, provides good drainage, resists decomposition and is both inexpensive and widely available. However, it has one critical attribute that may negate all of these seemingly good qualities: high levels of zinc.

Tire manufacturing involves addition of zinc oxide to strengthen the rubber. Ground rubber contains 1.55 percent zinc. Under acid conditions in the soil, zinc bound in the rubber becomes available for plant uptake. Research shows that as little as 2 percent ground rubber mixed with sand causes a decline in plant growth that is directly attributable to zinc toxicity (Schulz 1987). Symptoms of this toxicity in amended media include wilting, discolored leaves and very high concentrations of zinc in the leaf tissue (Bowman and others 1994).

Although zinc is essential for plant growth, most landscape soils and media used for container-grown nursery stock already contain adequate levels. Therefore, addition of zinc from any source may cause more problems than it resolves. Ground rubber, as either a mulch or a media amendment, increases the potential of zinc toxicity, especially when coupled with application of micronutrients in the fertilizer. As the old adage says

> "Enough of a good thing is as good as a feast . . . too much of a good thing is good for nothing. . . ."
>
> —Theodore Hook

As a rule, evaluate any potential soil or media amendment thoroughly before using it on a routine basis. Research on the effects of ground rubber on plants indicates that it is unsuitable for use in production of nursery crops (Handreck 1996).

References

Bowman DC, Evans RY, Dodge LL. 1994. Growth of chrysanthemum with ground automobile tires used as a container soil amendment. HortScience 29: 774–6.

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