

**The Overexpression of Glutamine Synthetase in Transgenic Poplar:**

A Review

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**Abstract**

In investigating the pivotal role of glutamine synthetase in woody plant development, we have strived to develop an understanding of the biochemical and physiological mechanisms whereby enhanced expression of glutamine synthetase (GS) in poplar contributes to vegetative growth through enhanced nitrogen use efficiency. Considerable effort has also centered on characterization of enhanced resistance of transgenic GS overexpressor lines to abiotic stresses and proposed mechanisms. This summary of our work also focuses on future applications in forest tree improvement.