Doubling average corn yields to 300 bushels acre\(^{-1}\) will require simultaneous improvements in genetics and crop management, as well as alleviation of biological and environmental stresses. Because many of the physiological responses to stresses are modulated by the plant hormone ethylene, we are investigating technologies that alter the level of, or the sensitivity to, ethylene as means of protecting the corn plant from stress. We have examined the competitive ethylene inhibitor 1-MCP, which decreases plant sensitivity to ethylene, aminoethoxyvinylglycine (AVG), which decreases ethylene biosynthesis, and strobilurin-based fungicides which in addition to disease control cause a late-season leaf greening thought to be associated with ethylene biosynthesis. We have applied these compounds at different growth stages, under different environmental conditions, and with varied crop management in order to evaluate when, and how, the control of ethylene can be used to improve the productivity of corn. Collectively, our data suggests that altering ethylene level (or sensitivity) alone cannot guarantee higher yields, but rather ethylene control in combination with multiple factors that impact productivity gives farmers the greatest chance to produce 300 bushels acre\(^{-1}\) of corn.