NITROGEN-USE EFFICIENCY

CropLife INTERNATIONAL

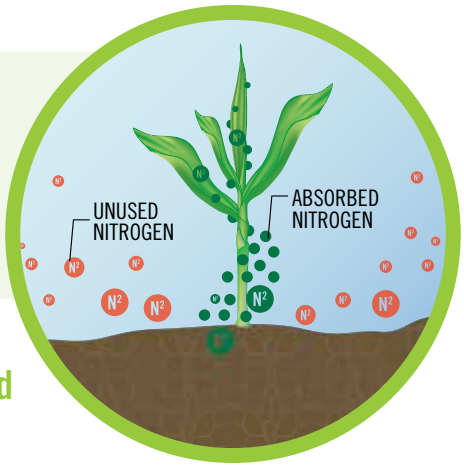
Impact of Nitrogen on Global Agriculture:

Nitrogen fertilizers have been essential to boosting crop productivity in recent decades. They help farmers grow heartier and healthier crops that can feed a growing population. However, most plants can only absorb part of the nitrogen in fertilizer, which leaves essential nutrients unused. New seed traits that allow crops to use nitrogen more efficiently and effectively can provide an immense boost to productivity and help farmers grow significantly more food, especially as climate change threatens production.

Nitrogen Challenge:

Fertilizers contain essential nitrogen nutrients for plants. However, **most crops can only absorb about half the nitrogen contained in the fertilizer,** while the rest is lost to the atmosphere.[1]

Nitrogen-use efficient seeds could absorb more nitrogen and significantly increase harvests.



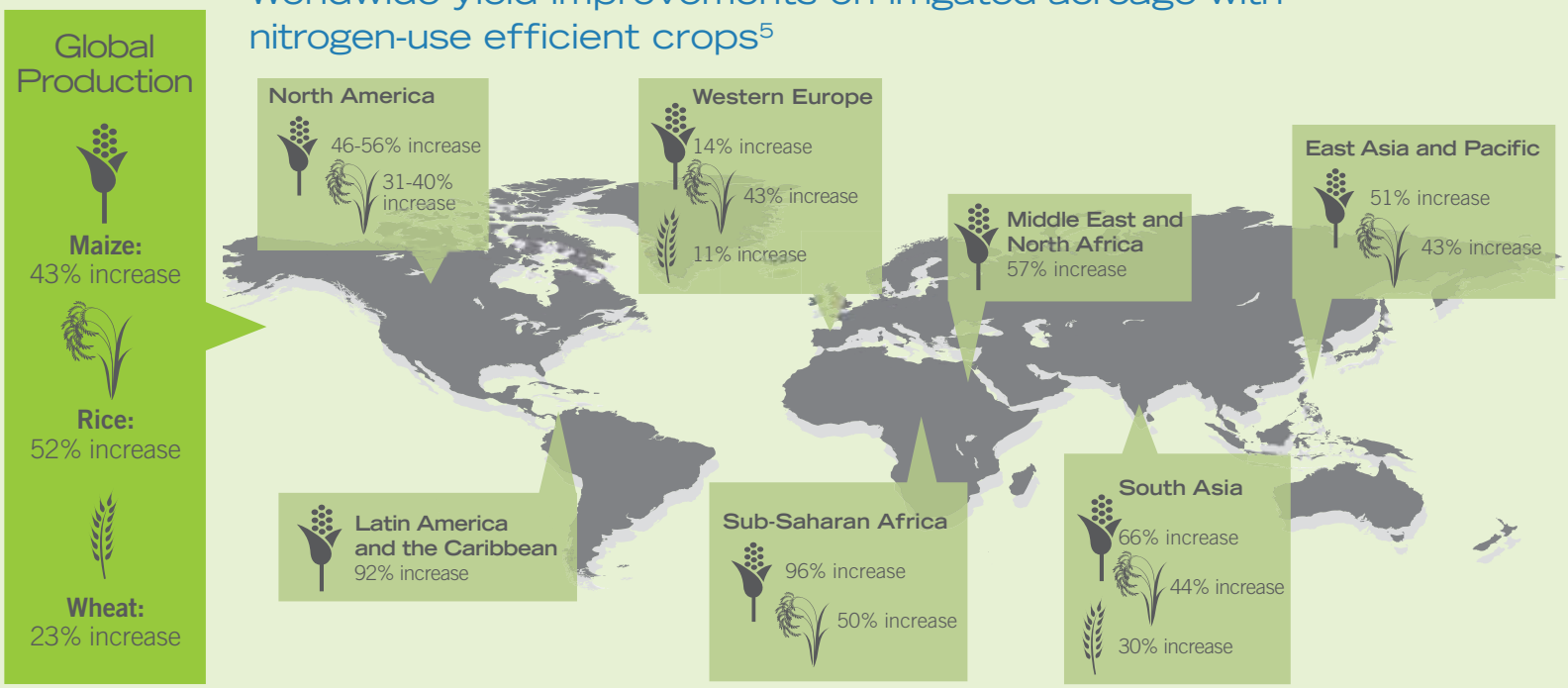
Technology Profile:

- Nitrogen-use efficient (NUE) crops, developed through biotechnology, absorb applied fertilizers more efficiently, leading to **better growth and increased production.**
- Rice, maize and canola varieties with the NUE trait are expected to reach the market in the next 7-10 years. Research trials show that NUE crops **yield as much as 15% more** per acre than crops without the trait.[2]
- NUE crops could **double maize yields** in Sub-Saharan Africa by 2050.[3]
- A recent study estimated that NUE crops could **reduce the amount of people at risk of hunger by 124 million in 2050.**[4]

Global Benefits:

By 2050, agriculture will need to produce enough food to feed 9 billion people while battling increasingly difficult growing environments due to climate change. Nitrogen-use efficient crops will enable farmers to improve productivity, even in the face of these challenges, and deliver yield benefits around the world:

Worldwide yield improvements on irrigated acreage with nitrogen-use efficient crops[5]



References:

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2. Grooms, L., 2012, "Seed companies developing hybrids that use nitrogen more efficiently," Farm Industry News, August 31, (http://farmindustrynews.com/biotech-traits/seed-companies-developing-hybrids-use-nitrogen-more-efficiently).
3. 2014 International Food Policy Research Institute: Food Security in a World of Natural Resource Scarcity: The Role of Agricultural Technologies.
4. 2014 International Food Policy Research Institute: Food Security in a World of Natural Resource Scarcity: The Role of Agricultural Technologies.
5. International Food Policy Research Institute AgriTech Toolbox Crop Model: http://apps.harvestchoice.org/agritech-toolbox/

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