

# In Memoriam: Dr. Norman Borlaug, 1914-2009

The IPNI Board of Directors issued a brief statement honoring the legacy of Dr. Norman Borlaug, who passed away on September 12 in Dallas, Texas, at the age of 95.

The message of the IPNI Board of Directors states: *We join with millions of people around the world in expressing appreciation and admiration for the great achievements of Dr. Norman Borlaug. His dedication to science in agriculture is responsible for improving the lives of individuals around the world over the past 50 years and into the future. In an amazing journey from his*




*Iowa farm roots to world recognition as a Nobel Peace Prize laureate, he never lost sight of the importance of global food security and the power of science through agriculture. Dr. Borlaug was considered by many as the father of the 'Green Revolution' as his early work in plant breeding led to great increases in harvests of cereal crops in Mexico, India, Pakistan, and other countries.*

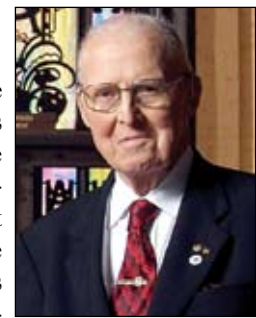
Dr. Borlaug in field plots.

*His phenomenal success in breeding high-yielding varieties of wheat, rice, and other crops evolved into broader initiatives in training young agricultural scientists, educating audiences around the globe, and furthering important humanitarian causes. The International Plant Nutrition Institute extends its condolences to the Borlaug family and to his many friends and colleagues. While we are saddened by the loss of this innovative scientist and beloved leader, we believe his vision and accomplishments will serve as inspiration to future generations to continue the quest for world food security.*

“Dr. Borlaug was one of those rare individuals who made the most of his fame and influence to champion the cause of applying science for humanitarian benefits,” noted IPNI President Dr. Terry Roberts. “He recognized the role of fertilizer in producing the world’s food and took every opportunity to remind policymakers and the public that fertilizer is a critical component of global food security.”

In July 2007, Dr. Borlaug received the Congressional Gold Medal, the highest honor given by Congress.

A public memorial at Texas A&M University on October 6, 2009, celebrated the life and work of Dr. Borlaug. About 1,000 people attended the service. To learn more about his vision and legacy, visit the website of the Norman Borlaug Institute for International Agriculture: <http://borlaug.tamu.edu>. 



Dr. Norman Borlaug



Bringing the Green revolution to Africa was one of Dr. Borlaug’s goals.

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is likely to remain constant in the future, while area fertilized with K is expected to slightly increase as yields increase.

Oil palm production in Indonesia is projected to significantly increase because of both area expansion and opportunities for yield intensification. To meet the nutrient requirements at higher yield and considering lower soil fertility of available land for oil palm, fertilizer P and K use is expected to increase. Fertilizer N rates may remain the same assuming advancements in N management leading to greater efficiency.


## Fertilizer Use Scenarios

Future fertilizer use in rice largely depends on farmers’ ability to intensify production considering limitations in area expansion (**Figure 3**). As a result, the upper and lower boundaries of future fertilizer use in rice do not show much change with time. In contrast, the expected increase in area under oil palm will likely result in an increase of fertilizer consumption (lower green boundary), while opportunities for yield intensification are associated with increased fertilizer use, particularly of P and K. Comparing the two crops, rice will remain to be the larger consumer of fertilizer N, while fertilizer P consumption in oil palm may reach the levels observed in rice depending on future yield intensification. Oil palm will continue to consume more fertilizer K than rice and this gap

is likely to widen in the future.

## Conclusions

Boundaries of future fertilizer use scenarios for a given crop and region can be estimated using current knowledge on yield gaps and realistic expectations on crop intensification and area expansion. It is understood that any economic constraints of the day will combine with agronomic constraints to modify the likelihood of achieving the full extent of the shifts in crop intensification that are indicated.

By employing the concepts of yield gap analysis and future fertilizer use scenarios within AgriStats, we have begun to build a global database with analytical tools able to construct comparisons across countries and crops. The overall goal is to systematically improve our understanding of attainable yield and crop production in a given country or region, providing further guidance on knowledge gaps to be addressed through field research and crop modeling. 

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## Note to Readers

AgriStats is currently a private service available to members of IPNI. Inquiries may be sent to [gsulewski@ipni.net](mailto:gsulewski@ipni.net).