

## **17. Nutrition:**

John Kelsey - - - 2023 Sept

I see three reasons one might consider applying some fertilizer:

1. A “worn-out” or acidic planting site might make it hard for a new planting to get started. It is easy to do soil test, correct problems, and give the new plants a fighting chance.
2. Trees are a wonder. If you do nothing, you will end up with a forest. In primeval forests the soil just became better and better, but nobody was harvesting trees. Farmers of every sort know that you need to put back more than you take off, or it is depletive.
3. Annual growth might be speeded up a little with some nutritional boost. I would do both soil and tissue test.

I’m on very thin ice concerning this subject, so I’ll direct you to the experts:

[https://web.extension.illinois.edu/forestry/publications/pdf/black\\_walnut/USFS\\_Black\\_Walnut\\_Nutrition.pdf](https://web.extension.illinois.edu/forestry/publications/pdf/black_walnut/USFS_Black_Walnut_Nutrition.pdf) - - - Felix Ponder

Guide to Fertilizing Hardwood Trees for Timber - - - Bob Ball and Jerry VanSambeek - - - Walnut Council - - - Missouri Chapter News 2021 April

Nitrogen Fertilization of Black Walnut (*Juglans nigra* L.) During Plantation Establishment. Morphology and Production Efficiency - - - Goodman, et al

Growth and nutritional response of hardwood seedlings to controlled-release fertilization at outplanting - - - Jacobs, et al

Nitrogen Recovery from Enhanced Efficiency Fertilizers and Urea in Intensively Managed Black Walnut (*Juglans nigra*) Plantations - - - Sloan, et al

See email from Hugh Pence below:

RE: Tree Fertilization

This is in response to Bob Ball's question about tree fertilization. The following is my "off the top of my head" response without any facts or figures to correlate with any specific research:

Over the years, reviewing fertilizer data, the general comment would be that fertilizer doesn't pay on a high fertility site. Felix Ponder's research showed that on a poor site there was some response to fertilizer.

My personal opinion on what the fertility should be on a walnut growing site is as follows:

- 1) Lime to reach a pH of 6.8 – 7.1.
- 2) On a low organic site, 30 lbs. of nitrogen per acre, per year should be positive, but to what degree would be unknown.
- 3) Phosphate: apply enough to get your phosphate level to 40-50 parts per million.
- 4) Potassium: 225 parts per million or higher.
- 5) Calcium magnesium: will be taken care of with the pH adjustment.
- 6) Sulfur: an element that is difficult to test for precisely. Fifty lbs. of ammonium sulfate per acre should be helpful.
- 7) Copper: I've never seen it in short supply, but copper sulfate could be applied at some rate, if a site tested low for copper.
- 8) Zinc: 12 parts per million as a minimum.
- 9) Boron: 1.2 parts per million as a guide. Felix Ponder had a response to Boron on some sites.

The above is just a matter of opinion, but I think an adequate test for corn would be a more than adequate test for walnut.

As a point of information, I tested my farm early on and fertilized accordingly to the soil test requirements. When it was tested 4-5 years later, the soil tests under the trees, would be good enough to grow 180 bushel corn, and I was happy with the fertility level. Twenty-five years later, when I retested the farm, I found that the fertility level had not decreased. Since no nutrients are being removed from the tree growing site, the leaves are basically recirculating the fertility of whatever the tree takes up.

In summary, the above is a very non-scientific opinion of the fertility needs for potentially maximizing tree growth. Some level of fertility less than the numbers shown could possibly maximize tree growth – who knows. So, the above numbers would be the maximum needed.

Hugh Pence