Berger

technical Grower talks

by Berger

Growing Media Components

Most primary components **can be certified** or authorized for organic productions. However, although the growing media appears to be very similar to traditional substrates, formulations have been modified to cater to organic requirements.

Materials NOT Permitted for Organic Productions:

Synthetic fertilizers, synthetic wetting agents, buffered coir…

Fertilizer

Differences between fertilizer in traditional and organic production.

Traditional

- Types of fertilizer used:
  - Water-soluble fertilizers
  - Slow release fertilizers (SRF)
  - Controlled release fertilizers (CRF)

- «True» N-P-K values.
- Uniform and consistent composition.
- Much better control and precision for plant nutrition.

Organic

- Types of fertilizer used:
  - Compost
  - Worm Castings
  - Blood Meal, Bone Meal, Feather Meal…
  - Pelletized Manures, Guanos…

- Not «true» N-P-K values.
- Composition can be variable.
- Availability of nutrients is dependent on many factors.

Wetting Agent

Differences between wetting agent in traditional and organic production.

Traditional

- Wetting agent used:
  Non-ionic wetting agent
- Non-ionic wetting agents have a high efficiency and a long shelf-life when incorporated into a growing media.

Organic

- Wetting agent used:
  Yucca based wetting agent
- Yucca extracts have a lower efficiency and a short shelf-life when incorporated into a growing media.
- They are also significantly more expensive.

Coir

Differences between coir in traditional and organic production.

Traditional

- Type of coir used:
  Buffered
- The coir is washed and treated with calcium (Ca) and magnesium (Mg) to remove the Potassium (K) and Sodium (Na).

Organic

- Type of coir used:
  Washed
- The coir is washed to remove the Sodium (Na).
- It will tend to rob calcium and magnesium from the growing media.

Chemical Fertilizer VS Organic Fertilizer

The primary difference between both fertilizers is the **source of fertility** and the **need for microorganisms**.

Synthetic Fertilizers	
Organic Fertilizers	
Source	**Characteristics**
They are substances containing nutrients derived from the remains or by-products of plants & animals.	The release of the nutrients in highly variable and depends on the microbiological activity in the soil.

Selecting the Adequate Fertilizer

For short term crops, don’t select fertilizers where the nutrients will take a **long time to be available**. Be aware that there is only a **small variety** of organic liquid fertilizers used for supplemental feeding that are available. Generally, they are made from fish or plant extracts.

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It is best to start supplemental fertilization with liquid fertilizers **soon after transplanting** and continue with regular feeding even if the mix has compost or worm castings. Keep in mind that certain organic liquid fertilizers **are not compatible** with all irrigation systems.

Fertilization Program

Availability of Nutrients

It is largely based on biological activity in the mix. This process takes time.

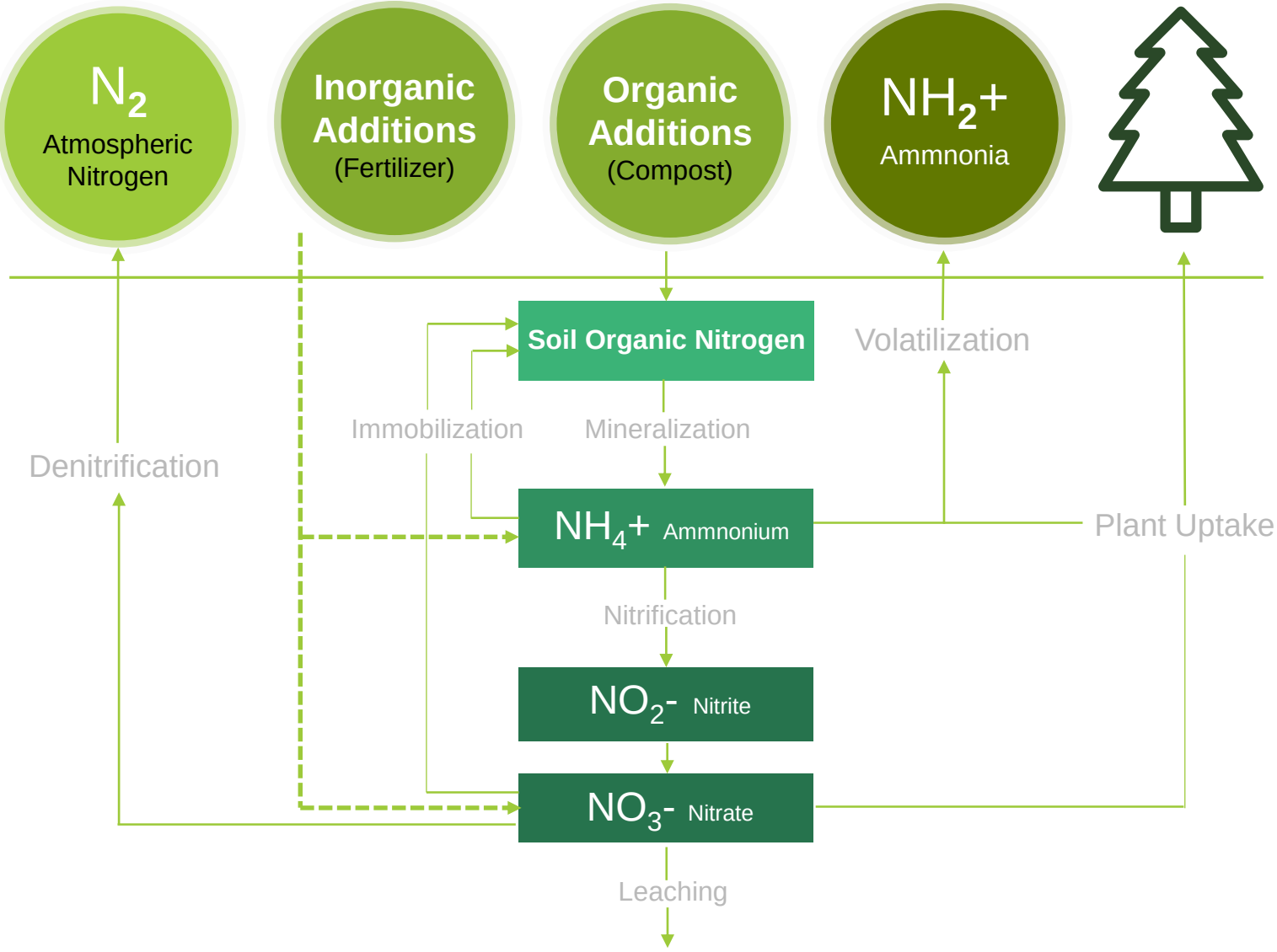
If there isn’t an adequate microflora present in the growing media or if the conditions aren’t adequate for their activity, nutrients won’t be available regardless of how much organic fertilizer was added.

The microflora can be replenished by inoculating the substrates with certain products such as compost tea.

Material	% Nitrogen	% Phosphate	% Potash	Availability*	Notes**
Alfafa Hay	2-3	0.5-1	1-2	Slow/mod.	
Bone Meal	1-6	11-30	0	Moderate	Alkaline
Blood Meal	12	1-2	0-1	Rapid	Acidic
Cottonseed Meal	6	3	1	Slow	Acidic
Compost	1-3	1-2	1-2	Moderate	Alkaline
Feather Meal	12	0	0	Moderate	
Fish Meal	6-12	3-7	2-5	Rapid	Acidic
Grass Clippings	1-2	0-0.5	1-2	Moderate	
Hoof/Horn Meal	12-14	1.5-2	0	Moderate	Alkaline
Kelp	1-1.5	0.5-1	5-10	Moderate	Zinc, Iron
Leaves	1	0-0.5	0-0.5	Slow	
Legumes	2-4	0-0.5	2-3	Moderate	
Manures: Cattle	2-3	0.5-1	1-2	Moderate	Weed seed
Horse	1-2	0.5-1	1-2	Slow	Weed seed
Swine	2-3	0.5-1	1-2	Rapid	
Poultry	3-4	1-2	1-2	Rapid	
Sawdust	0-1	0-0.5	0-1	Very Slow	
Sewage Sludge	2-6	1-4	0-1	Moderate	Zinc, Iron
Seaweed Extract	1	2	5	Rapid	Zinc, Iron
Straw/Corn Stalks	0-0.5	0-0.5	1	Very slow	
Wood Ashes	0	1-2	3-7	Rapid	

Environmental Control

Since the availability of nutrients is dependent on microorganisms, maintaining an adequate temperature in the rootzone is **essential to the success** of the production.
Supplemental heating can be provided around the root zone in order to optimize the mineralization process.



Plant Growth Regulators (PGRs)

PGRs aren’t accepted for organic productions.

However, other techniques can be used:

- Brushing
- Manipulation of day-night temperatures
- Avoid overcrowding with proper spacing
- Avoid low light intensity

Irrigation System

As previously mentioned, the irrigation system **may need to be adapted** according to the fertilization strategy.

Pest & Pathogen Control

01

Knowledge

Key pests, pest lifecycles, natural enemies & growing area

02

Prevention

Site selection, variety, time of planting & rotations, water & nutrition, management, farm hygiene and pest host management

03

Observation

Crop monitoring, pest prediction models, pheromone traps and yellow sticky traps

04

Intervention

Mechanical controls, biological controls and chemical controls

05

Evaluation & Planning

Review monitoring records, talking, listening, reading and thinking. Consult & adapt.

Understanding the Process of Composting

Composting is a biological decomposition of organic materials by microorganisms under aerobic conditions. The end result is a relatively stable humus-like material called compost.

Water Oxygen Heat CO_2

Feedstock

(Raw manure, bedding, feed wastes, nutrients, carbon, nitrogen, water, soil…)

+ Time =

Mature Compost

A uniform mixture of decomposed organic matter, minerals and microorganisms with reduced volume, weight and moisture content.

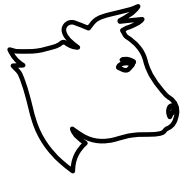
Feedstock Comparisons

Poultry Manure

1.1-1.4-0.6

Chicken Manure

1.1-1.4-0.6

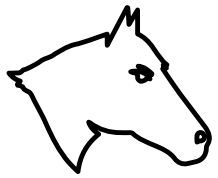


Cattle Manure

0.6-0.2-0.5

Goat Manure

0.7-0.3-0.9

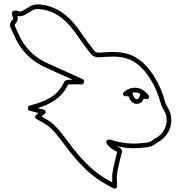


Horse Manure

0.7-0.3-0.6

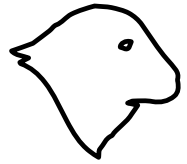
Pig Manure

0.5-0.3-0.5



Rabbit Manure

2.4-1.4-0.6



Sheep Manure

0.7-0.3-0.9

Compost Characteristics in Growing Media

Chemical characteristics:

Contains nutrients | pH around 7 (if composted properly)

Physical characteristics:

Very high density | Small particle size | High water retention

Advantages:

Increase water retention.

Provide nutrients that are slowly released (between 5-20%).

Berger's Compost

Always produced with the same sources of nitrogen and carbon.
Berger's compost is **listed by OMRI**.
Piles are **monitored** throughout the composting process.
(Temperature, C/N ratio, SME analysis, Mechlich-3 analysis, etc.)
Once matured, the piles are **covered to protect** them from contaminants and **preserve the quality** of the compost.
Sieved with a **starscreen system**.
Run off water from compost production is treated to protect the environment.

OMRI® LISTED
For Organic Use

Berger Organic Growing Mixes

Made with components **listed by OMRI**, the OM product series is ideal for growers who want to break into this dynamic and rapidly growing sector of the industry.

Whether for fruits, vegetables, herbs, or even flowers and ornamental plants, a product tailored for organic crops is available for every growing stage.

The Berger Difference

Berger's rigorous quality control system guarantees that your organic plants will have identical physical and chemical characteristics from one load of crops mix to another, ensuring a remarkably **uniform product.**

Bag Sizes Available

Berger's Traceability System

For Berger, traceability is extremely important. With a **proven identification process**, we can trace all the individual ingredients that were used to produce each blend, and samples of each production are kept for a full year after the mix is manufactured.

16711	99	234	14	024	05	1

Product Code

Bagging Format

Julian Date of Production

Year of Production

Unit Number

Production Site

Production Work Shift

A Team that Stands by You

Berger has a team of specialists dedicated to finding proven and innovative solutions for your **production needs**. Our expert scientists accompany professional growers like you throughout the growing cycle, helping to **boost growth** while optimizing and streamlining operations.

Our multidisciplinary team can also carry out a wide variety of **chemical and physical analyses**, including:

- Saturated Media Extract (SME) analysis;
- Water and nutrient analysis
- Tissue analysis;
- Complete physical characterization.

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