Mazzei Injector Company...

40 Years of Innovations
Chemigation or Fertigation?

- **Fertigation:** the application of soluble fertilizers (plant nutrients) through an irrigation system
- **Chemigation:** the application of chemicals (pesticides and other products to adjust water pH) through an irrigation system

**Chemigation Is Used Interchangeably With Fertigation**

**Fertigation** is often more efficient at supplying the plant with nutrients than banding or broadcast applications
<table>
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<th>Venturi Systems</th>
<th>Positive Displacement Pumps</th>
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<tr>
<td><strong>Uniform distribution</strong> due to better dissolution of chemicals</td>
<td><strong>Injects pulses</strong> of concentrated nutrients</td>
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<td><strong>No moving parts</strong>—<strong>lower maintenance</strong></td>
<td><strong>More working components</strong>—<strong>higher maintenance</strong></td>
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<td><strong>If needed, booster pump lasts longer</strong> because only pumps clean water</td>
<td><strong>Booster pump wears faster</strong></td>
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<td><strong>Finer control</strong> of suction rates</td>
<td><strong>Lower control</strong> of suction rates</td>
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<tr>
<td><strong>Maintain accuracy</strong> of rate of suction over time</td>
<td><strong>Lose accuracy</strong> of rate of suction as they wear</td>
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<td><strong>Economical</strong>—lower cost even if system requires booster pump</td>
<td><strong>More expensive</strong></td>
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<tr>
<td><strong>Safe</strong> even in pressurized irrigation systems—products added under negative pressure (vacuum)</td>
<td><strong>In pressurized irrigation systems often difficult, expensive, unreliable &amp; sometimes dangerous</strong></td>
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Mazzei Injectors... High-efficiency venturi differential pressure injectors with internal mixing vanes.
TYPICAL INSTALLATIONS

PRESSURE REDUCING BYPASS

PRESSURE BOOST BYPASS

FULL FLOW
For Better Fertigation...

• Ensure irrigation flow is consistent and working well before starting

• Combine nutrients with stream immediately and proportional to flow to get well mixed, uniform distribution

• Perform “jar test”—make certain additives are compatible

• Test plant tissue and irrigation water—assure nutrient delivery rate is proper and nutrients are absorbed by plants

• Avoid over irrigation—protect the groundwater from excess nutrients

• Flush injection system after each use
Proportional Feed Fertigation continuously provides lower concentrations of fertilizer throughout the irrigation cycle—*applying it and delivering it at a rate that can be readily absorbed by the plant*—versus the common practice of applying large amounts of fertilizers a few times in a growing season.

Proportional Feed Fertigation Provides both Economic and Environmental Benefits to the Grower.
Components to Look for in a Proportional Feed System:

- Equipment Quality and Reliability
- Accuracy
- Simplicity—Ease of Use
- Safety Alarms, Alerts and Systems
- Connectivity
- Historical Use Reports—Tracking
- Reduction in Fertilizer Use
Tru-Blend Features

- Handles Flows from 150 GPM to 4,000 GPM
- Used with Mainline Pipe Diameters from 4” to 16”
- 5 Independent Mazzei Injectors—Suction Rates from 5 GPH to 100 GPH Each
- Numerous Nutrition Plans and Fields Can Be Supported by One Tru-Blend
Tru-Blend... Reliable & Safe

• Built In 3-Step Injector Cleaning Process after Each Chemical Addition—$1^{st}$ flushes with air, $2^{nd}$ cleans with water, and $3^{rd}$ dries with air

• Unit Fully Enclosed

• Safety Alarms, Alerts and Systems Protect Crop and the Environment
AirJection® Irrigation

**DEFINITION:** Injecting air into water with a Mazzei® injector and delivering the air/water mixture to the root zone via subsurface drip irrigation

“Plow Without a Plow”

*U.S. Patent No. 6,173,526 and International Patents*
With Air Injected to Root Zones...

- Increase in crop yield and quality
- Root respiration, soil microbes and soil animals sustained
- Improved root mass and above ground canopy
- Especially effective in clay and saline soils
AirJection Can Be Used On All Soil Types
9-Year Update
Cantaloupe

9 Year Average Increase of 188 Boxes per Acre!
Thank You

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