Mandatory Good Agricultural Practices (GAPs)
What are Mandatory GAPs?

- Application Practices that:
  - Improve safety & efficacy
  - May be generic or specific to application method, chemical

- Developed by registrants, growers, applicators, and EPA

- Many already on labels

- Must document in Fumigant Management Plan and/or Post Application Summary to show compliance
Why have GAPs?

- Ensure that all applicators follow the same standards

- Reduce potential for:
  - bystander & handler exposure to emissions from soil fumigants
  - accidents

- Improve efficacy of soil fumigation
Mandatory
Good Agricultural Practices

- Wind Speed
- Weather Conditions
- Identifying Unfavorable Weather Conditions
- Soil Conditions, Injection Depth and Soil Sealing
- Tarps
- Soil Temperature
- Soil Moisture
- Flush Irrigation Lines (if applicable)
- Application Equipment Considerations
Dependent upon

- Method of Application
  - Shank
  - Spray Blade
  - Rotary Tiller
  - Center Pivot
  - Solid Set Sprinkler
  - Drench
  - Drip
  - Flood Basin, Furrow and Border
  - Injection
  - Application Method-Specific
“The following GAPs must be followed during all fumigant applications.”

“All measurements and documentation to ensure the mandatory GAPs are achieved must be recorded in the FMP and/or the post-application summary.”

- Always under the MANDATORY GAPs section of the label
GAPs were usually found under the heading: APPLICATION DIRECTIONS
May not have been called GAP’s
GAPs were sometimes recommended by the label, not required
Label statements may have included language like “the soil should” or “it is recommended”
Label Statements
New Labels

- Include MANDATORY GOOD AGRICULTURAL PRACTICES
- GAPs are required to be followed by the applicator
- Label statements may include language like “the soil must …”
Soil Preparation
The soil should be free of clods. Large clods can prevent effective soil sealing and reduce effectiveness of Telone C-17. Plant residues should be thoroughly incorporated into the soil prior to treatment to avoid interfering with application. Non-decomposed plant material may harbor pests that will not be controlled by fumigation. Little or no crop residue should be present on the soil surface. Crop residue that is present should lie flat to permit the soil to be sealed effectively. Compacted soil layers within the desired treatment zone should be fractured before or during application of the fumigant. Deviation from the above conditions may result in unsatisfactory results.
Example
Telone C-17 *2011 label*

Soil Preparation
Soil must be in good tilth and free of large clods. Large clods can prevent effective soil sealing and reduce effectiveness of the application. If subsurface soil compaction layers (hardpans) are present within the intended fumigation treatment zone, a deep tillage to fracture these layers must occur prior to or during the soil fumigant application.

Plant residue that is present must not interfere with the application or the soil seal. Undecomposed plant material may harbor pests that will not be controlled by fumigation. Crop residue that is present must lie flat to permit the soil to be sealed effectively and limit the natural “chimneys” that may occur in the soil when plant residue is present. These “chimneys” allow the soil fumigants to move through the soil quickly and escape into the atmosphere. This may create potentially harmful conditions for workers and bystanders and limits the efficacy of the fumigant. Plant residue on the field serves to prevent soil erosion from both wind and water.
Optional GAPs

- May still be present on labels
- Usually under the Application or Use Directions
- May include recommendations for:
  - Equipment
  - Soil Sampling
  - Safety measures
  - Many others
For soil injection, apply VAPAM HL at the minimum rate of 30 gallons per treated acre using either shanks, sweep blades, double-winged shanks, or a Noble Plow Blade combined with a surface application. Single shanks should be spaced no more than 6 inches apart with either single injection outlets no more than 6 inches deep or dual injection outlets spaced at 6 and 12 inches deep. Single sweep blades should be spaced no more than 12 inches apart with sweeps 12 inches wide and a spray nozzle that will provide broadcast coverage from sweep tip to sweep tip. Double-winged shanks should be spaced no more than 12 inches apart with no more than 9 inches between adjacent wings and with spray nozzles that provide uniform coverage. The Noble Plow blade should have spray nozzles spaced 6 inches apart to give uniform coverage, an injection depth set at 12 to 14 inches deep, and be combined with a surface application using a disc to immediately incorporate the VAPAM HL placed on the surface. Follow all the above applications immediately with a roller/packer to smooth and compact the soil surface.
Mandatory Good Agricultural Practices:

- Minimize exposure from emissions
- Increase safety and efficacy of applications
- May be generic, or specific to a chemical or application method
- Many on labels as recommendations, more will be mandatory
- Must be documented in FMPs and/or post-application summaries