

2016 Multiple Inlet Rice Irrigation (MIRI) Tips

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- **Suggested poly tubing sizes for different flow rates:**
 - 12 inch tubing – less than 1,200 GPM.
 - 15 inch tubing – 1,200 to 2,200 GPM.
 - 18 inch tubing – greater than 2,200 GPM.
 - Keep in mind elevation changes along tubing run could influence pressure.
- **Placement of poly tubing:**
 - A trench for the tubing to lie in is best to help it stay in place, but sometimes this is not possible.
 - If laying the tubing on the field border next to a road be sure that the area is flat – if the tubing is on a slope it may roll and twist.
- **When crossing levees with the tubing:**
 - Square the tubing as much as possible, any angle or slant when crossing the levee may cause the tubing to roll or twist.
 - Be sure you have enough tubing in the levee furrows on both sides of the levee so the tubing doesn't sag and stretch the tubing.
 - Crossing compacted levees, cut a small "saddle" out of the top of the levee with a shovel for the tubing to lay in, but if the levee isn't packed very good or is very loose skip this step.
 - Crossing loose or unpacked levees, place a spill under the tubing if soil is loose or if you have a surging well. Sometimes it's necessary to shovel the edge of the furrow out for an easy transition down into and out of the furrow and over the levee.

- **Dealing with steep field slopes:** if the field is falling at such a rate that levees don't slow the irrigation water down enough, increase the rise of the tube crossing levees or use a choker to restrict flow.
- **Tubing placement in center of field:** to equalize flood depth on both sides of the tubing, place a 4-6" diameter pipe under the irrigation tubing on the deep water side of the paddy in the levee furrow. The pipe should be longer than the width of the irrigation tubing.
- **Where to punch holes and place blue 2 ½" gates:**
 - Place holes in the top side of the paddy so the tubing in each paddy will hold water inside it all season and be less likely to float and twist.
 - Place holes above the horizontal midline to help hold water and keep tubing in place.
 - If running the tubing in the center of the field holes can be punched in the top of the tubing to further assist the tubing to stay in place.
- **To help restrict tubing movement:** some producers will put PVC pipe on both sides of the tubing when going thru a long run to keep it in place; or even punch the PVC pipe directly through the tubing, but never before it has water to make certain no shifting occurs afterward from the weight of the water.
- **Dealing with air pockets in the tubing:**
 - Air pockets can significantly restrict water flow in all tubing sizes.
 - To remove air pockets, punch a small round hole in the top of the tubing using a wire flag, small nail, or a pen/pencil. NEVER USE A KNIFE – the hole will enlarge and rupture the tubing.
 - Punch as many holes as needed to get out the majority of the air pockets.
 - These air pockets can cause the tubing to become brittle and sometimes wildlife will see the bubbles and jump on or bite the tubing to catch the bubbles and rupture the tubing.

- **Determining number of blue gates needed per field:**
 - Divide water flow by 75 – the average flow of blue 2 ½” inch gates. This flow will be higher or lower depending on pressure in the tubing but 75 gpm is a good average.
 - 1800 GPM well / 75 = 24 gates. Meaning 24 gates fully open are needed to run the well at 1800 GPM.

- **Determining number of blue gates needed per paddy:**
 - First, calculate the flow per acre using the well flow (1800 GPM) and the field size (60 acres):
 - 1800 GPM well / 60 acre field = 30 GPM per acre.
 - Second, calculate the flow per paddy based on the size of the paddy (10 acres) and the flow per acre (30 GPM per acre):
 - 10 acre paddy X 30 GPM/A = 300 GPM for this paddy.
 - Finally, calculate the number of blue gates needed for this paddy:
 - 300 GPM flow / 75 GPM for each blue gate = 4 gates needed for this 10 acre paddy.
 - Suggest putting 3 holes with the blue gate installer and 2 blue gates (one completely open and one closed! - this allows adjustment if we need more or less water in each paddy!)
 - Use of Blue Gates is preferred over simply punching holes in the tubing because it allows for easier adjustment in individual paddies. However, holes can be punched and plugged conventionally.

- **Setting levee gates:**
 - When MIRI is used correctly we only use the levee gates (spills) to allow excess rainfall to drain.
 - Set the levee gates to maintain desired flood depth and then raise the gates an additional 1-3 inches (called free board) to capture rainfall and save additional pumping costs.
 - Exact amount levee gates are raised should depend on how tall and well-constructed the levees are. Don't set them higher than the levee can safely hold.
 - Why attempt to capture rainfall? One inch rain on 80 acres is over two million gallons of water, which would take a 1500 GPM well 24 hours of pumping to achieve!