Changing the face of the earth to feed the world.

As the demand for water increases across the globe, rice producers are beginning to question traditional irrigation methods, and face an uncertain future with a limited number of alternatives. The competition for the earth’s most precious resource, along with the world’s ever-growing population, has led to the process of growing rice under center pivot and linear machines.

Center pivot and linear irrigation machines are designed to precisely irrigate a grower’s field. Center pivots irrigate in a circular pattern while linears travel back and forth across a field in a straight line.

With traditional flood irrigation methods, rice must be grown on a flat or nearly flat field with specific soil characteristics; these fields often require extensive levelling or complex borders. However, with center pivot and linear irrigation, rice can be produced in areas where it was never before possible. Because center pivots and linears can irrigate rice on most types of terrain and soils, more land can be put into rice production, increasing the amount of food produced and giving growers another crop for their operation!

Benefits to Traditional Rice Growers

- No need for precision leveling or contour levees
- Reduce water use by only applying water when needed
- Dry fields lead to easy and clean harvest
- Ability to precisely apply chemicals and fertilizers through the center pivot or linear
- Increased profit potential versus flooded rice
Benefits to growing rice with center pivots and linears.

Valley Irrigation was the first center pivot company to extensively research and document a management system to produce rice under center pivots and linears. This patented process includes five major guidelines to help growers maximize yield, increase profitability, and reduce overall costs.

The process includes:
- Seed characteristics
- Chemical/fertilizer applications through the center pivot or linear
- Irrigation scheduling
- Solutions to minimize wheel tracks
- Water application packages

Average cost savings when producing rice with a center pivot

Net Income - 5% more profitable
Miscellaneous Costs - 5% savings
Labor - 76% savings
Diesel - 34% savings
Repair and Maintenance - 63% savings
Fungicides and Insecticides - 37% increase in spending
Herbicides - 7% increase in spending
Fertilizer - no cost difference

Benefits to Non-Traditional Rice Growers

- Minimal field preparation
- No need for expensive aerial applications of fertilizers or chemicals
- Ability to grow rice on land not suitable for traditional flood irrigation
- Rice can be added to the crop rotation
- More profit potential than other crops

Benefits to Society

- Center pivot and linear irrigation allow for minimum tillage, which benefits the soil
- Fewer greenhouse gas emissions have been observed
- Water conservation
- Reduced leaching of fertilizers and chemicals
- More food produced using fewer resources
Valley Irrigation has been conducting commercial research on rice production under center pivot and linear machines since 2008. Both research and field trials have been, and continue to be, conducted in an effort to conserve resources and farm inputs, increase grower profitability, and produce more food for the world’s growing population.

<table>
<thead>
<tr>
<th>Region</th>
<th>Production Sites</th>
<th>Research Sites</th>
</tr>
</thead>
<tbody>
<tr>
<td>U.S.A. 2009-2014</td>
<td>22</td>
<td>6</td>
</tr>
<tr>
<td>South America</td>
<td>12</td>
<td>8</td>
</tr>
<tr>
<td>Africa</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Middle East</td>
<td>7</td>
<td>1</td>
</tr>
<tr>
<td>C.I.S.</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>China</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

Research sites were monitored by one of many Circles for Rice partners: RiceTec, the University of Missouri Delta Research Center, the University of Arkansas, Texas A&M University, Embrapa, and Irga.