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# Pakistan

**Post:** Islamabad

# Floods in Pakistan

**Report Categories:**
Agricultural Situation
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**Report Highlights:**

For the fifth consecutive year, flooding is occurring in Pakistan as crops are ready for harvest. This report looks at the effects that large floods have had on cotton and rice production over the past 40 years. Significant flooding has pushed production lower in the past, especially for cotton. FAS Islamabad will further assess crop status over the next few weeks and incorporate our findings into commodity updates.

Pakistan depends on the Indus River and its main tributaries (the Sutlej, the Ravi, the Chenab, and the Jhelum) for an estimated two thirds of its water. All five rivers run through the province of Punjab which accounts for 80 percent of Pakistan's agricultural production. While monsoon rains are important, farmers in Pakistan are largely dependent on these rivers and the dams and irrigation systems that have developed around these rivers for crop production. Major crops during the kharif (summer or monsoon season) include cotton, rice, sugarcane, and a variety of fruits and vegetables.

Historically, Pakistan has endured periodic flooding of its river system. Heavy flooding occurred in 1973, 1976, 1978, and 1992. Of late, flooding has become more frequent with significant annual flooding from 2010 to 2013; floods are again raging along the Indus and some of its tributaries. Some are calling the 2014 flooding the worst since 1973, but the flooding is not as widespread as the 2010 floods that covered a significant portion of the country.

Comparing the effects of individual floods on crops is difficult because floods often occur in different parts of Pakistan depending on snow melt and rainfall patterns. Hence, while flooding may affect a rice-growing area one year, the next year it may occur primarily in an area where few crops are grown, making flood-to-flood comparisons of the effects on crops somewhat difficult.
Peak flood waters are still making their way south and west across Pakistan, but the initial assessment from the more northern parts of Punjab where flood waters have receded, is that less than 10 percent of crop area was affected and waters receded quickly, thereby minimizing damage in areas where crops were submerged.

The following tables compare production of rice and cotton during the year preceding the flooding and the year in which the flooding occurred. Reductions in cotton production are consistent and relatively large. However, some of the historical damage may have been the result of cloudy skies and late-season wet conditions that often led to boll worm infestations. The reduced damage in 2010 despite widespread flooding may, to some degree, reflect the recent adoption of Bt cotton which counters bollworms. The effects of flooding on rice are less predictable and have not always led to reductions in production. It is too early to determine the full extent of the 2014 flooding or make a comparison to previous floods, but some damage to cotton and rice production may have occurred and the crops will be evaluated and discussed in updates later this month.

**Changes in Pakistan's Cotton Production Following Major Floods**
**(million 480 lb bales)**

| Year | Area Affected (Square Km) | Pre-Flood Production | Flood-Year Production | Difference | Provinces Affected |
|---|---|---|---|---|---|
| 1973 | 41,472 | 3.1 | 2.9 | - 6 % | Punjab |
| 1976 | 81,920 | 2.3 | 1.9 | -17 % | Punjab and Sindh |
| 1978 | 30,597 | 2.5 | 2.1 | -16 % | Punjab |
| 1992 | 38,758 | 10.0 | 7.0 | -30 % | Punjab |
| 2010 | 38,600 | 9.2 | 8.6 | - 6 % | All, worst in Sindh and Punjab |

**Changes in Pakistan's Rice Production Following Major Floods**
**(million metric tons of rough rice)**

| Year | Area Affected (Square Km) | Pre-Flood Production | Flood-Year Production | Difference | Provinces Affected |
|---|---|---|---|---|---|
| 1973 | 41,472 | 3.4 | 3.6 | +6 % | Punjab |
| 1976 | 81,920 | 3.9 | 4.1 | +5 % | Punjab and Sindh |
| 1978 | 30,597 | 4.4 | 4.9 | +11% | Punjab |
| 1992 | 38,758 | 4.9 | 4.7 | - 4 % | Punjab |
| 2010 | 38,600 | 10.2 | 7.5 | -28 % | All, worst in Sindh and Punjab |