

SEEPAGE WATER MANAGEMENT

WHAT IS SEEPAGE?

Seepage is the lateral movement of irrigation water through a rice field levee or border to an area outside the normally flooded production area. Seepage can occur through levees into adjacent dry fields or into existing drains and canals. Although leakage caused by crayfish and rodent burrowing is not considered seepage, it can also result in the movement of irrigation water away from rice fields.



HOW CAN I RECOGNIZE SEEPAGE?

Seepage appears early in the growing season as a wet area on the outside of border levees or in adjacent dry fields. Seepage is readily apparent later during the growing season as an accumulation of water or by the growth of green weeds along the edge of a field. Occasionally, seepage appears as a wet area that can damage a perimeter road.



WHY IS SEEPAGE A PROBLEM?

Seepage water that contains high concentrations of pesticides can hinder efforts to comply with California's stringent water quality goals. Efforts to meet these goals depend on long holding periods, which allow pesticides to dissipate almost completely in rice fields before release. Long holding periods reduce the amount of Ordram leaving the field.

Nevertheless, the concentrations of rice pesticides found in many agricultural drains exceed the levels found in tailwater released from rice fields after an adequate holding period. Therefore, seepage and off-target applications (e.g., drift) are believed to be the sources of the high concentrations currently found in agricultural drains. As holding periods for rice pesticides increased during the last decade and the contribution of fieldwater releases to pesticide loading of surface waters decline, the relative contribution of seepage to this loading was recognized. Currently, seepage is regarded as an important contributor to pesticide loading in Sacramento Valley waterways.

ORIGINAL

SEEPAGE PREVENTION

1. First and foremost, block any exits of the seepage ditch that may drain into agricultural drains or canals.
2. If the seepage problem is extreme and cannot be prevented, a small sump and pump may be needed to move water back into the system or onto fallow land.
3. Carefully check levees and banks for crayfish and rodent damage. Repair leaks and controls pests when present according to IPM guidelines.
4. Whenever possible, build border levees in the fall to allow for settling and compaction during the rainy winter months.
5. Always build levees at a moisture content suitable for maximum compaction of your soil type. See your local US Natural Resources Conservation Service engineer for details.
6. Ensure that levee construction begins with a solid foundation and core. Do not build levees on top of a straw layer or other organic matter, as this may lead to horizontal flow below the levee. Avoid excessive straw and organic matter in levee construction.
7. Sandier soils may require wider border levees.
8. Compact and firm up the levee core during construction using a tractor track.
9. If feasible, surround the levee system with a perimeter road to help ensure that all water is contained within the system.
10. Use the recommendations for levee construction in the US Natural Resources Conservation Service publication Closed Rice Water Management Systems.
11. Inspect and repair permanent levees for wind, wave, crayfish, and rodent damage both prior to flooding and during the growing season. Control crayfish and rodents using University of California (IPM) guidelines.