TCCIP 臺灣氣候變遷推估資訊與調適知識平台
Taiwan Climate Change Projection Information and Adaptation Knowledge Platform

Demonstration Case Study on Agricultural Adaptation

Revising Cultivation System & Technical Improvemets

Challenges for Rice Production

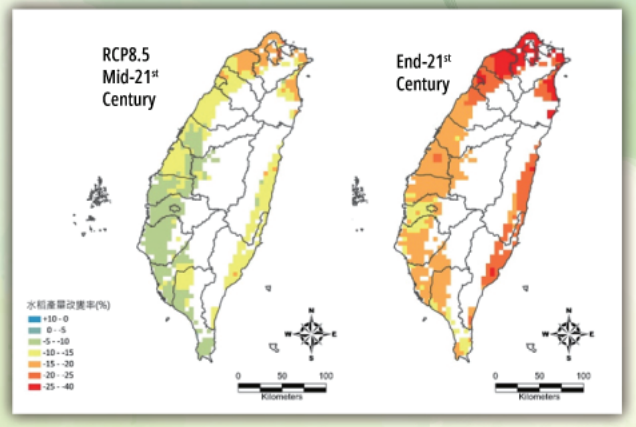
- Rice production takes up 70% of all agricultural water consumption.
- Stable supply of water in the area is disrupted by water restrictions posed on agricultural production and first season rice crops are often affected.
- Xingfeng locates at the end point of Shi- Men water supply network and naturally holds a big disadvantage in competing for water.
- Seedlings require 30~40 days to nurture and water restrictions usually happen after such production process, therefore causing economic loss for small scale growers.
- Population ageing in village resulting in labor shortages for agricultural production.

Future Climate Impact

- Through DSSAT simulation, rice production is projected to have a decrease of 20% in Northern Taiwan by mid-century while a decrease of more than 25% is observed by the end-of-21st century.
- In Hsin-chu county, there may be a decrease of 14% rice production by mid-century and a decrease of 23.6% by end-of-21st century.

Adaptation Benefits

- By monitoring the demosnation site for 2 consecutive years, direct seeding proves to have less yield per hectare than traditional seedling plantation. However, cost of production using direct seeding is lower and provides similar rice quality.
- Direct seeding can plant on dry fields, not only saves water during the drought period, but also requires less human labor and time to cultivate. Therefore making the plantation more flexible to policy changes.

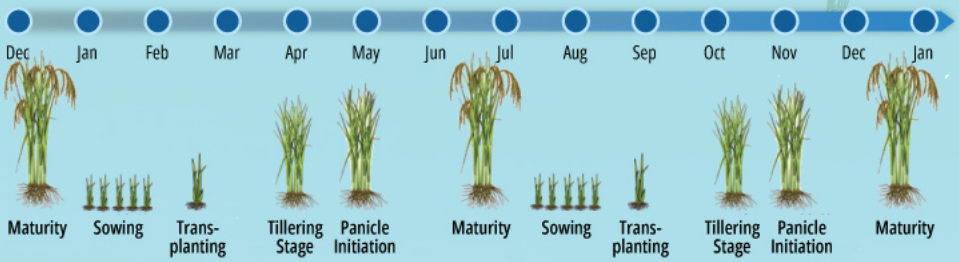


*Climate Scenario: RCP8.5

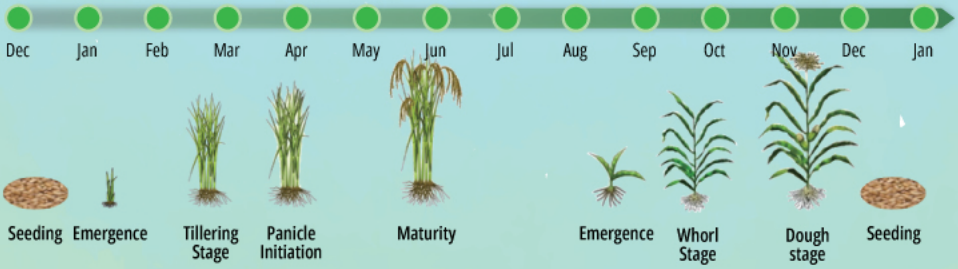
Adaptation Options

After multiple stakeholders engagements and consideration on the practicality, technical accessibility, and scientific measurability, it was concluded that revising cultivation system using direct-seeding and crop rotation was the best adaptation option for the area.

Conventional Cultivation System



Water-saving Cultivation System



TCCIP team began the demonstration case study in attempts to link climate projection data with actual adaptation actions. Through this effort, TCCIP helps developing new tools and testing different methodologies to effectively help the practitioners and decision makers to identify the best strategies in planning and implementing adaptation in their field.

Experience Sharing and Knowledge Curation

- Technical transferred was made to Taoyuan Agricultural Improvement Agency for further studies to explore the possibility of expanding direct-seeding plantation and the suitability of other rice breed for such planting technique.
- Direct-seeding workshop for rice plantation were hosted to promote the use of such technique in Central Taiwan.
- The results of this case study are documented and presented on the Adaptation Resources Kit webpage on the TCCIP platform.

Climate Change Service

TCCIP provides user-oriented climate change science services and emphasizes the link between scientific research and practical application. Through a systematic framework, it provides data and information on climate change adaptation services for different levels of agencies, industry, academia and research institutions.

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