AQUALINC

The Changing Attitude of Farmers to Irrigation:

Drought insurance,
Maximise production,
Maximise profit

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GROUNDWATER | IRRIGATION | RESOURCE CONSENTS | FARM ENVIRONMENT PLANS | EFFLUENT MANAGEMENT | WATER MANAGEMENT

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Overview

- Why should we care about this?
- What has changed over the years?
- What might a widespread shift to profit optimising behaviour mean?
- Summary of the opportunity and overview of associated issues.

Why should we care about farmers' attitudes to irrigation?

- The farmer's purpose for irrigating determines how they irrigate (along with other things).
- How farmers want to irrigate determines water allocation rates (ie affects consented rates of take)
- The water allocation rate determines how much land can be irrigated from a capped allocation pool.
- In many areas where water allocation has reached its limit there are significant un-met demands from a range of potential water uses.

Why should we care about farmers' attitudes to irrigation?

Purpose

↓

Allocation rates

↓

Balance between Haves & Have-Nots

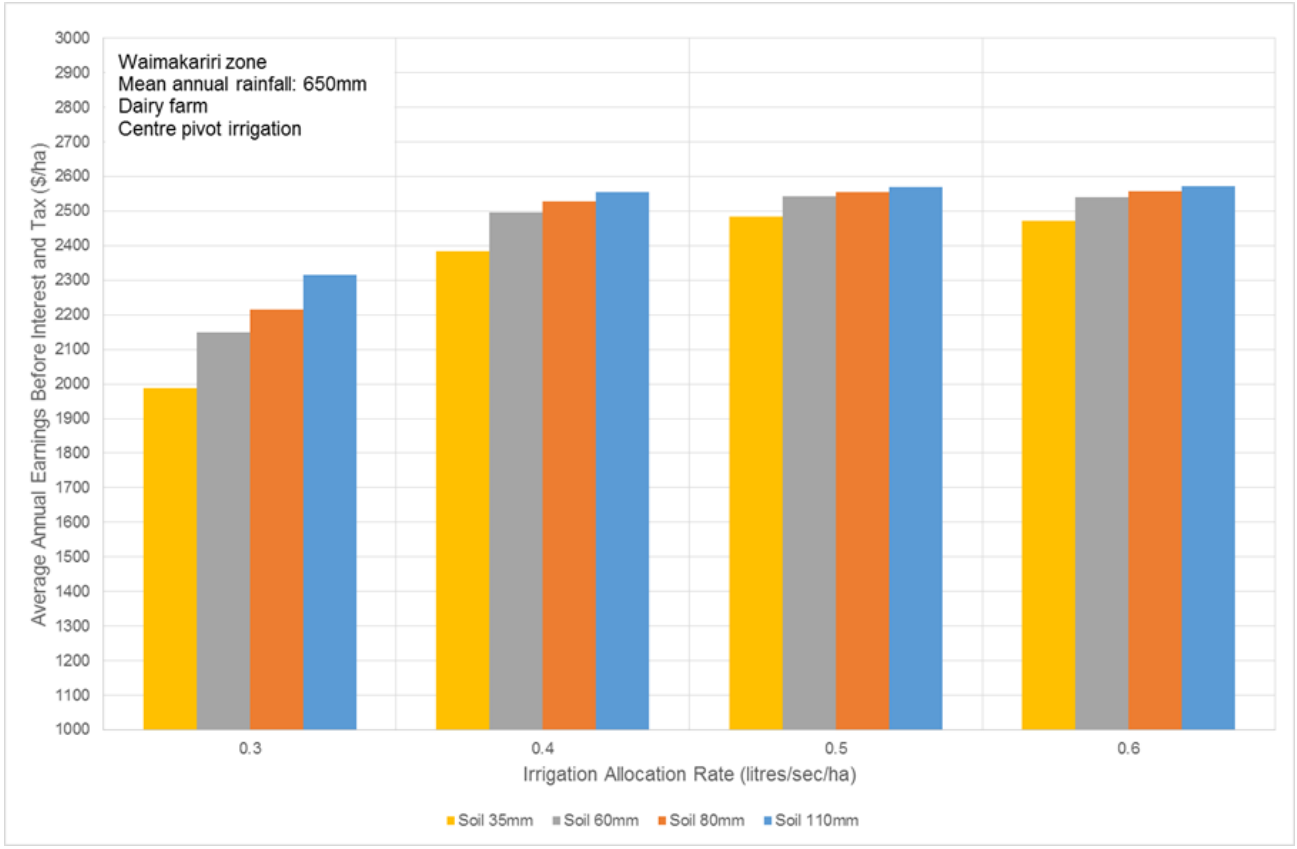
What has changed over the years?

- Up to 1960's: Drought insurance
  - 0.45 litres/sec/ha allocation rate
- 1970's: transition
  - 0.7 litres/sec/ha allocation rate for new irrigation schemes
- 1980's onwards: Maximise production
  - 0.6 litres/sec/ha allocation rate (for pasture)
- Recently: beginning to hear questions asked about how much allocation needed to maximise profit (??)

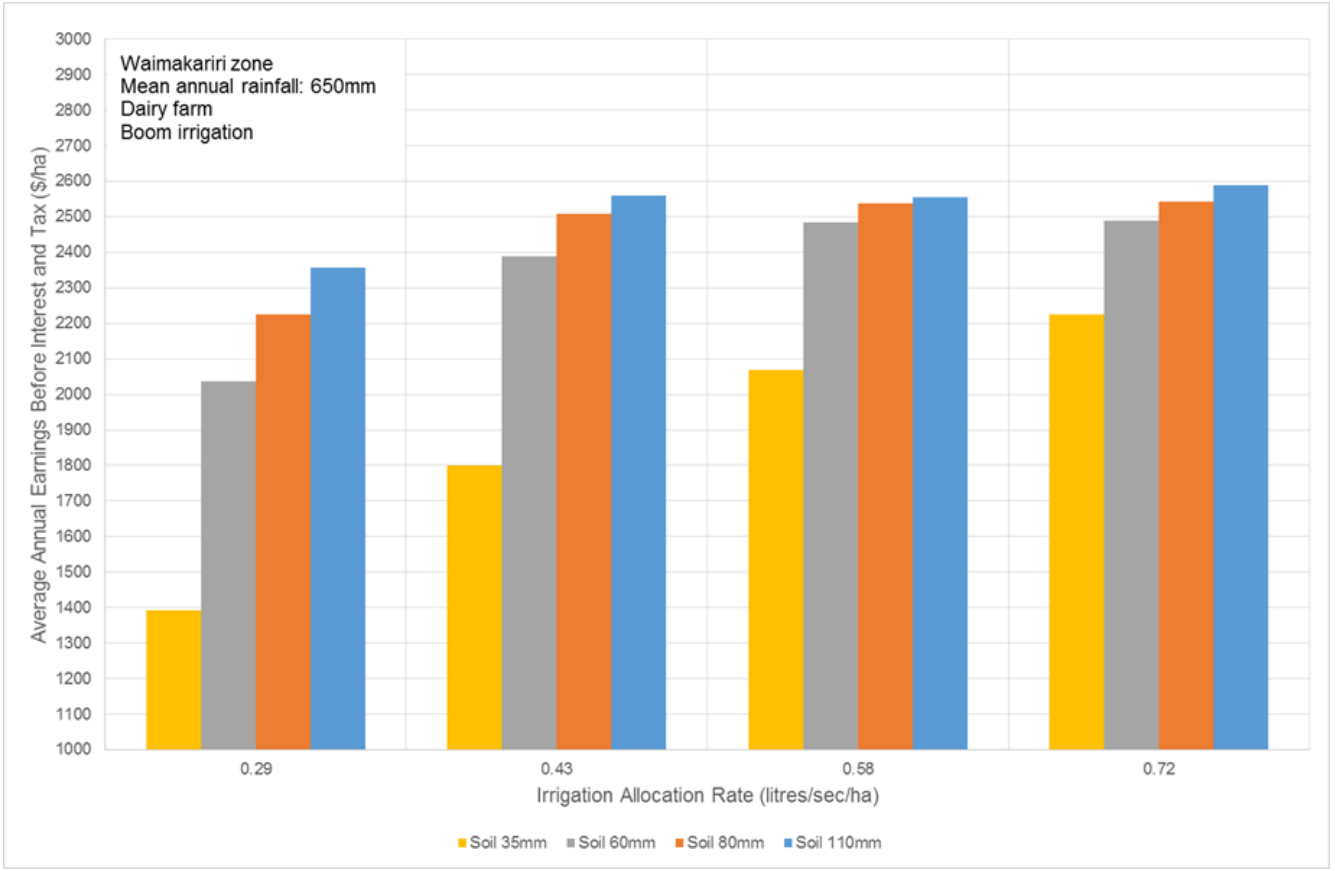
How might profit maximisation affect allocation rates?

- Turned this question around – what effect does reducing the allocation rate have on EBITD?
- Modelled the operation of two farm types, set in Waimakariri area, over the period 1972 – 2014.
- Annual time series of EBITD
- Initial focus was on the effects of allocation on average annual EBITD

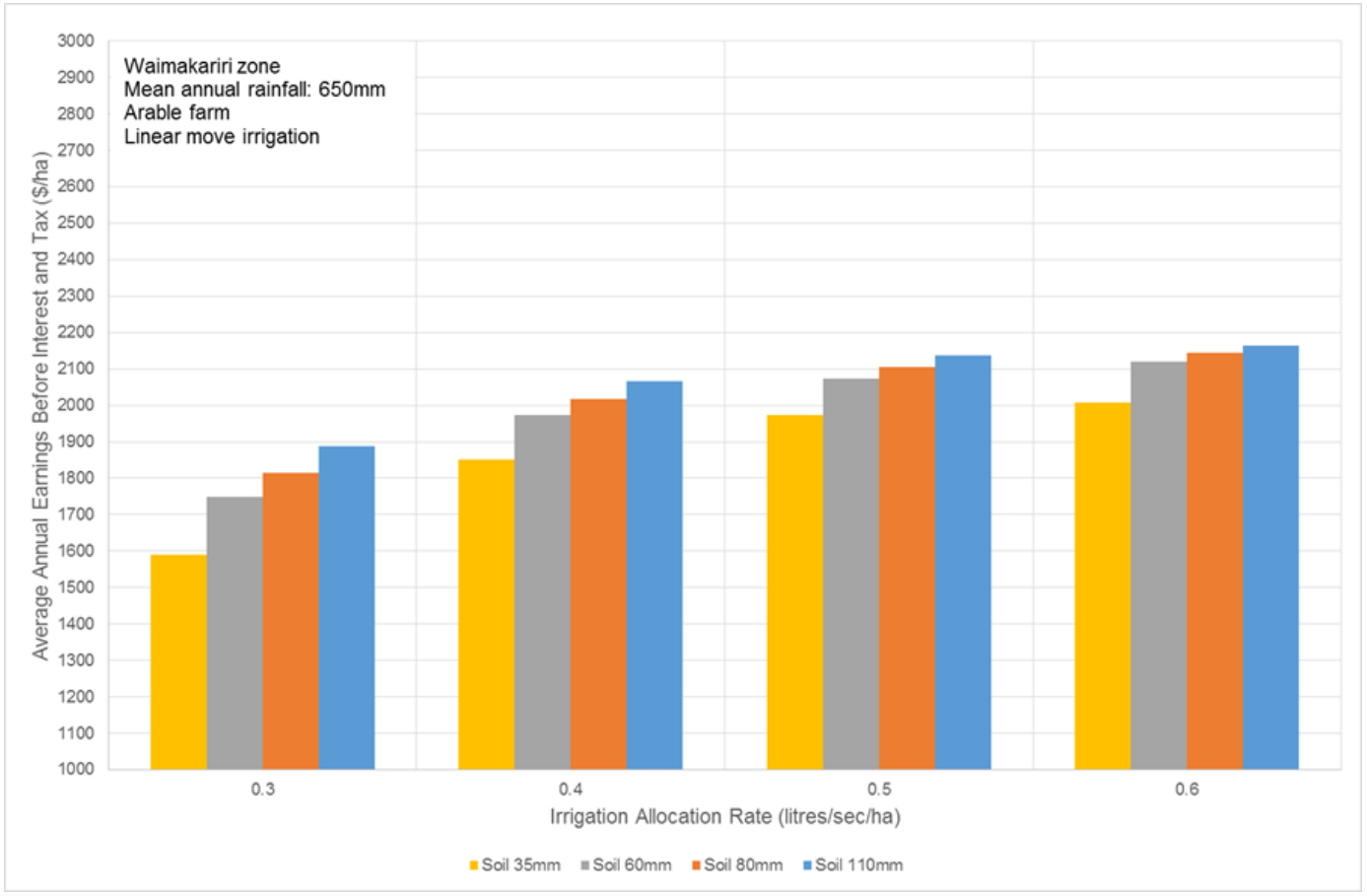
Dairy farm. Pivot Irrigation



Dairy farm. Boom or Gun Irrigation

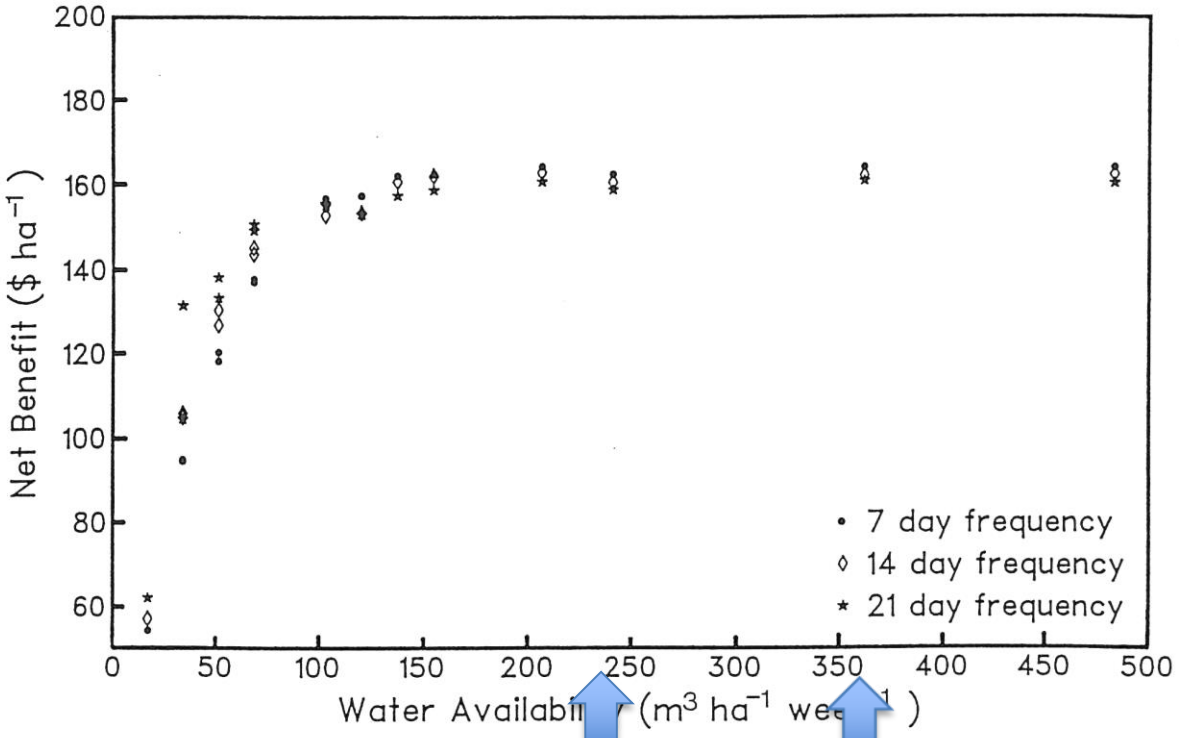


Arable farm. Linear move irrigation



Results from 30 years ago!

1985 $’s



Other studies

- Different teams, using different models.
- Same conclusions
  - Tasman
  - Irrigation scheme design studies.

When a fresh water management unit reaches full allocation, should we reduce the allocation rate on all consents to take water for irrigation?

Opportunity and issues

- The big opportunity is creating headroom for new uses.

- Issues (not limited to …)
  - Inter annual variability important: effects on balance sheet
  - Physical changes to irrigation system required: costs
  - …
  - …

- What's equitable?

Thank you for listening.