ARC Wheat Establishment Trial *2001/02*

Trial Co-ordinator: ARC, Nick Poole

BACKGROUND

- At the time of this trial, non-inversion tillage was growing in popularity as UK farmers sought ways to reduce the cost of crop establishment.
- Vaderstad had recently launched the 'Carrier' and were suggesting farmers could work at shallow depths, perhaps with 2 or 3 passes to gain an effective stale seedbed.
- Vaderstad commissioned this trial to evaluate the usefulness of the Carrier for crop establishment.
- ARC formatted and coordinated the trial for Vaderstad.

METHOD

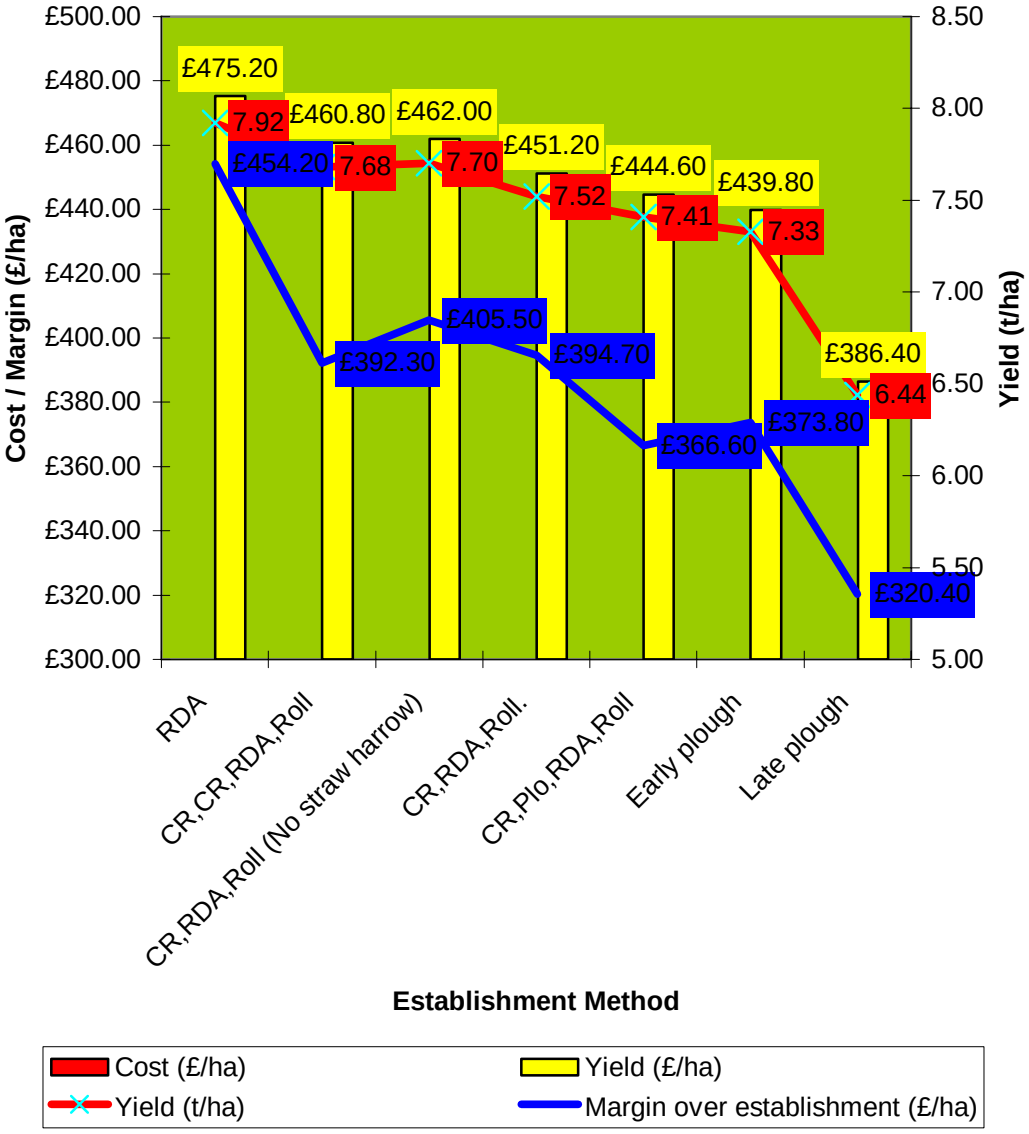
- The trial was performed in replicated plots over one year only.
- Soil type: light land/ chalk
- Vaderstad provided machinery and operators for the drill and Carrier
- A wheat price of £60/tonne was utilised for all financial calculations.
- Replicated plots were set up with treatments as follows:
  1. Rapid, direct drill
  2. Carrier x 2, Rapid, roll
  3. Carrier x 1 (no straw harrow), Rapid, roll
  4. Carrier x 1 (with straw harrow), Rapid, roll
  5. Carrier followed by plough
  6. Plough only (early)
  7. Plough only (late)

RESULTS

1. Results were in complete contrast to those found in 2001.
2. The direct-drilled plots achieved the best overall yield, with the financial margin over the cost of crop establishment considerably higher than any other plots.
3. The late ploughed plots gave the least yield.

2nd Wheat Yield Variations according to Establishment Method

(Results from ARC replicated trials 2002)



CONCLUSIONS

1. If properly managed, a reduced level of cultivations will not only offer the same yields as traditional establishment systems but can, in fact, achieve increased crop yield.

2. A reduced tillage method of crop establishment has the potential to offer cost savings and yield benefits.
3. However, yields can be variable. It should not be assumed that because a particular mode of crop establishment is successful in one year, that it will achieve a similar result in a different year.
4. The management level required when reducing the level and intensity of cultivations pre-drilling needs to be increased to ensure that the best possible results are achieved.
5. A decision will need to be made each year on whether or not a reduced tillage system is suitable for the conditions prevalent at that time taking into account all manor of external factors which may include:
    a. Soil type
    b. Soil structure / level of compaction
    c. Soil moisture content
    d. Weed burden
    e. Surface trash volume
    f. Previous crop type
    g. Crop to be established
    h. Prevailing weather conditions
    i. Harvest date
    j. Planned sowing date
    k. Field establishment history (ie long term min-till, or ploughed last year.)
6. Only when the farmer has taken account of all of the above, and perhaps more, can he/she decide on the most appropriate form of tillage system