1969

# Cropping Investigations

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PLANT RESEARCH DIVISION

# SUMMARIES OF EXPERIMENTAL RESULTS, 1969 GROWING SEASON

M.L. Poole

"CROPPING INVESTIGATIONS"

# TIME OF PLANTING, RATE OF SEEDING, WHEAT OATS & BARLEY
## OLD LAND
## MT. BARKER RESEARCH STATION.

| TREATMENT | REP 1 | REP 2 | REP 3 | TOTAL | BU/AC |
|---|---|---|---|---|---|
| JUNE PLANTING: | | | | | |
| Darkan Wheat 50 lb/ac | 85 | 92 | 99 | 276 | 43.6 |
| Darkan Wheat 100 lb/ac | 85 | 97 | 100 | 282 | 44.5 |
| Dampier Barley 50 lb/ac | 108 | 120 | 118 | 346 | 65.7 |
| Dampier Barley 100 lb/ac | 50 | 57 | 66 | 173 | 32.8 |
| Swan Oats 80 lb/ac | 126 | 119 | 141 | 386 | 91.8 |
| Swan Oats 100 lb/ac | 81 | 97 | 114 | 292 | 69.5 |
| JULY PLANTING: | | | | | |
| Darkan Wheat 80 lb/ac | 37 | 35 | 34 | 106 | 16.7 |
| Darkan Wheat 100 lb/ac | 33 | 35 | 34 | 102 | 16.1 |
| Dampier Barley 50 lb/ac | 64 | 67 | 62 | 193 | 36.7 |
| Dampier Barley 100 lb/ac | 71 | 71 | 66 | 208 | 39.5 |
| Swan Oats 50 lb/ac | 57 | 58 | 55 | 170 | 40.5 |
| Swan Oats 100 lb/ac | 65 | 62 | 62 | 189 | 44.9 |
| AUGUST PLANTING: | | | | | |
| Darkan Wheat 50 lb/ac | 28 | 28 | 25 | 81 | 12.8 |
| Darkan Wheat 100 lb/ac | 28 | 28 | 27 | 83 | 13.1 |
| Dampier Barley 50 lb/ac | 29 | 37 | 34 | 100 | 19.0 |
| Dampier Barley 100 lb/ac | 39 | 42 | 38 | 119 | 22.6 |
| Swan Oats 50 lb/ac | 35 | 39 | 37 | 111 | 26.4 |
| Swan Oats 100 lb/ac | 36 | 41 | 39 | 116 | 27.6 |

OLD LAND

| Time of planting / Cereal | June | July | August |
|---|---|---|---|
| Darkan Wheat 50 | 43.6 | 16.7 | 12.8 |
| Darkan Wheat 100 | 44.5 | 16.1 | 13.1 |
| Dampier Barley 50 | 65.7 | 36.7 | 19.0 |
| Dampier Barley 100 | 32.8 | 39.5 | 22.6 |
| Swan Oats 50 | 91.8 | 40.5 | 26.4 |
| Swan Oats 100 | 69.5 | 44.9 | 27.6 |

BARLEY:
High seeding rate of July planting lodged badly.

OATS:
All plots of June planting 100% lodged.

History + Methods: Well drained gravelly loam. At least 3 yrs good clover pasture & several su. dressings (>500 lb/ac). Area topdressed with Mn-su 180 lb/ac. Cu, Zn, Mo before seeding; sown with 180lb/ac plain su. Urea 300lb/ac T-D immediately after seeding. Barley severely affected by powdery mildew in vegetative stage.

TIME OF PLANTING, RATE OF SEEDING WHEAT, OATS & BARLEY
NEW LAND
MT. BARKER RESEARCH STATION.

| TREATMENT | REP 1 | REP 2 | REP 3 | TOTAL | BU/AC |
|---|---|---|---|---|---|
| JUNE PLANTED: | | | | | |
| Darkan wheat 50 lb/ac | 102 | 108 | 109 | 319 | 50.4 |
| Darkan wheat 100 lb/ac | 95 | 87 | 100 | 282 | 44.5 |
| Dampier barley 50 lb/ac | 75 | 72 | 82 | 229 | 43.5 |
| Dampier barley 100 lb/ac | 71 | 74 | 77 | 222 | 42.2 |
| Swan oats 50 lb/ac | 57 | 57 | 50 | 164 | 39.0 |
| Swan oats 100 lb/ac | 46 | 37 | 40 | 123 | 29.3 |
| JUNE PLANTED: | | | | | |
| Darkan wheat 50 lb/ac | 88 | 100 | 90 | 278 | 43.9 |
| Darkan wheat 100 lb/ac | 89 | 88 | 94 | 271 | 42.8 |
| Dampier barley 50 lb/ac | 75 | 76 | 78 | 229 | 43.5 |
| Dampier barley 100 lb/ac | 73 | 74 | 74 | 221 | 42.2 |
| Swan oats 50 lb/ac | 76 | 81 | 72 | 229 | 54.5 |
| Swan oats 100 lb/ac | 72 | 66 | 63 | 201 | 47.8 |
| JULY PLANTED: | | | | | |
| Darkan wheat 50 lb/ac | 42 | 40 | 33 | 115 | 18.2 |
| Darkan wheat 100 lb/ac | 52 | 52 | -MP | (104) | 24.6 |
| Dampier barley 50 lb/ac | 43 | 48 | 44 | 135 | 25.7 |
| Dampier barley 100 lb/ac | 56 | 56 | 49 | 161 | 30.6 |
| Swan oats 50 lb/ac | 44 | 47 | 45 | 136 | 32.4 |
| Swan oats 100 lb/ac | 48 | 49 | MP | (97) | 33.3 |

NEW LAND

| Time of planting / Cereal | May | June | July |
|---|---|---|---|
| Darkan wheat 50 | 50.4 | 43.9 | 18.2 |
| Darkan wheat 100 | 44.5 | 42.8 | 24.6 |
| Dampier barley 50 | 43.5 | 43.5 | 25.7 |
| Dampier barley 100 | 42.2 | 42.2 | 30.6 |
| Swan oats 50 | 39.0 | 54.5 | 32.4 |
| Swan oats 100 | 29.3 | 47.8 | 33.3 |

MAY PLANTED OATS:
(a) 20 - 25% shedding
50 lb/ac seeding-rate 60% lodged
100 lb/ac seeding-rate 80% lodged

JUNE PLANTED OATS:
(a) 50 lb/ac seeding-rate 10% lodged
100 lb/ac seeding-rate 20% lodged

History + Methods: Chained and burnt 1968. Ploughed prior to seeding.

Topdressed Mn, Cu, Zn, Mo superphosphate 180 lb/ac prior to seeding. Seeded with 180 lb/ac plain su. Topdressed 300 lb/ac urea after seeding. Barley severely affected by powdery mildew in vegetative stage.

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RATE OF SEEDINGS (2) X ROW SPACING (3) X TIME OF PLANTING (3) ON POLESTAR SUNFLOWERS

Locality: Mt. Barker Research Station

Site: Gravelly loam, old clover land

Design: Seeding rate (2) x row spacing (3) factorial with 3 reps. Three times of planting.

Hand Harvested:

| Seeding rate & spacing \ Time of Planting | June | August | October |
|---|---|---|---|
| 7" rows @ 6 lb/ac | 687 | 460 | 257 |
| 7" " " 12 " | 762 | 288 | 256 |
| 21" " " 6 " | 482 | 293 | 169 |
| 21" " " 12 " | 452 | 160 | 155 |
| 42" " " 6 " | 299 | 208 | 136 |
| 42" " " 12 " | 338 | 169 | 112 |

Comment:

Early planting at 7" row spacing and 6-12 lb/ac gave best results.

No difficulties were encountered in growing the crop. Spraying for red-legged earthmite and cutworm appeared essential. No disease problems. Harvesting with machine very difficult despite fact that special "tray" fingers were fitted.

History + Methods:

Old clover land which had received more than 500 lb/ac superphosphate.

Topdressed 360 lb/ac Cu, Zn, Mo superphosphate No. 2 prior to seeding of each time of seeding. Urea 300 lb/ac. Topdressed prior to seeding each time of seeding.

69WH14

RATES OF SEEDING (5) X RATE OF NITROGEN (5) ON FALCON AND PITIC WHEATS

Location: Wongan Hills Research Station

Site: Wongan loamy sand. Second crop on old clover land

Measurements:
(1) Germination counts
(2) Tiller counts
(3) Head counts
(4) Total dry weight, straw weight, head weight
(5) Grain yield

Design: Randomized block of varieties x seeding rate treatments with 3 reps. These plots split in five for N (urea) treatments.

1. Germination counts. Assumed that surface applied urea would not affect germination. Counted 3 ft of row from 10 inside rows of seeding rates x varieties.

| Seeding Rate | Falcon | Pitic |
|---|---|---|
| 20 | 71 | 72* |
| 40 | 139 | 130 |
| 60 | 216 | 191 |
| 80 | 241 | 211 |
| 120 | 354 | 310 |

* Figures are No. of plants/90' of row.

ADV No significant differences between varieties.

2. Tiller counts. 2 ft x 8 rows/sub plot.

FALCON

| Rate of seeding lb/ac / Rate of Urea lb/ac | 20 | 40 | 60 | 80 | 120 | Total |
|---|---|---|---|---|---|---|
| 0 | 440* | 665 | 726 | 880 | 1016 | 3727 |
| 50 | 495 | 753 | 843 | 1008 | 1298 | 4397 |
| 100 | 502 | 860 | 816 | 1075 | 1328 | 4581 |
| 200 | 591 | 886 | 1063 | 1087 | 1308 | 4935 |
| 200 x 3 (5 wkly intervals) | 624 | 973 | 1035 | 1188 | 1531 | 5351 |
| Total | 2652 | 4137 | 4483 | 5238 | 6481 | 22991 |

* Figures are No's of tillers in 48 ft. of row

PITIC

| Rate of seeding lb/ac / Rate of Urea lb/ac | 20 | 40 | 60 | 80 | 120 | Total |
|---|---|---|---|---|---|---|
| 0 | 390 | 536 | 660 | 812 | 1004 | 3402 |
| 50 | 569 | 721 | 846 | 923 | 1107 | 4166 |
| 100 | 543 | 711 | 782 | 994 | 1092 | 4122 |
| 200 | 529 | 786 | 924 | 886 | 1406 | 4531 |
| 200 x 3 (5 wkly intervals) | 714 | 822 | 967 | 1049 | 1352 | 4904 |
| Total | 2745 | 3576 | 4179 | 4664 | 5961 | 21125 |

| ADV | Variance due to | VR |
|---|---|---|
| | Reps | * |
| | variety | N.S. |
| | rates of seed | *** |
| | V x R | NS |
| | Rate of N | *** |
| | V x N | NS |
| | R xN | NS |
| | V x N x R | NS |

3. Head counts. 2 ft x 8 rows/sub plot.

FALCON

| Rate of Urea lb/ac \ Rate of seeding lb/ac | 20 | 40 | 60 | 80 | 120 | Total |
|---|---|---|---|---|---|---|
| 0 | 417 | 327 | 490 | 498 | 594 | 2326 |
| 50 | 366 | 453 | 414 | 504 | 652 | 2389 |
| 100 | 368 | 435 | 495 | 555 | 671 | 2524 |
| 200 | 438 | 473 | 535 | 532 | 668 | 2646 |
| 200 x 3 (5 wkly intervals) | 445 | 532 | 537 | 585 | 681 | 2780 |
| Total | 2034 | 2220 | 2471 | 2674 | 3266 | 12665 |

PITIC

| Rate of Urea lb/ac \ Rate of seeding lb/ac | 20 | 40 | 60 | 80 | 120 | Total |
|---|---|---|---|---|---|---|
| 0 | 216 | 307 | 386 | 414 | 438 | 1761 |
| 50 | 244 | 347 | 488 | 418 | 462 | 1959 |
| 100 | 242 | 305 | 431 | 490 | 403 | 1871 |
| 200 | 301 | 421 | 418 | 539 | 441 | 2120 |
| 200 x 3 (5 wkly intervals) | 314 | 353 | 395 | 469 | 434 | 1965 |
| Total | 1317 | 1733 | 2118 | 2330 | 2178 | 9676 |

| ADV | Variance due to | VR |
|---|---|---|
| | Reps | * |
| | variety | *** |
| | rate of seed | *** |
| | VxR | * |
| | rate of N | *** |
| | V x N | NS |
| | R x N | NS |
| | V x N x R | NS |

4. Total plant weight. 2 ft x 8 rows/sub plot.

FALCON

| Rate of seeding lb/ac / Rate of Urea lb/ac | 20 | 40 | 60 | 80 | 120 | Total |
|---|---|---|---|---|---|---|
| 0 | 3303 | 2920 | 2275 | 2882 | 2961 | 14341 |
| 50 | 2947 | 2634 | 2588 | 2603 | 2540 | 13312 |
| 100 | 2584 | 3028 | 2976 | 3073 | 2440 | 14101 |
| 200 | 3018 | 3370 | 2662 | 2674 | 2574 | 14298 |
| 200 x 3 (5 wkly intervals) | 3188 | 2980 | 2545 | 2588 | 2251 | 13552 |
| Total | 15040 | 14932 | 13046 | 13820 | 12766 | 69604 |

PITIC

| Rate of seeding lb/ac / Rate of Urea lb/ac | 20 | 40 | 60 | 80 | 120 | Total |
|---|---|---|---|---|---|---|
| 0 | 1568 | 2294 | 2225 | 2225 | 2674 | 10986 |
| 50 | 1553 | 2103 | 2182 | 2165 | 2700 | 10703 |
| 100 | 1716 | 2019 | 2184 | 2536 | 2385 | 10840 |
| 200 | 1824 | 2163 | 1799 | 2502 | 2292 | 10580 |
| 200 x 3 (5 wkly intervals) | 1766 | 2086 | 2471 | 2282 | 2211 | 10816 |
| Total | 8427 | 10665 | 10861 | 11710 | 12262 | 53925 |

These samples divided into heads and straw to give following results and then heads threshed to give grain yield.

| ADV | Variance due to | V.R. |
|---|---|---|
| | Reps | 4.18 |
| | Variety (v) | 38.75*** |
| | rate of seed (R) | <1 n.s. |
| | V x R | 4.64** |
| | rate of N | <1 n.s. |
| | V x N | <1 n.s. |
| | R x N | <1 n.s. |
| | V x N x R | <1 n.s. |

5. Straw weight 2ft x 8 rows/sub plot (7" rows)

PITIC

| Seeding rate lb/ac / Rate of Urea lb/ac | 20 | 40 | 60 | 80 | 120 | Total |
|---|---|---|---|---|---|---|
| 0 | 266 | 400 | 422 | 401 | 521 | 2010 |
| 50 | 332 | 397 | 404 | 400 | 546 | 2079 |
| 100 | 288 | 343 | 395 | 480 | 427 | 1933 |
| 200 | 342 | 420 | 301 | 485 | 435 | 1983 |
| 200 x 3 (5 wkly intervals) | 300 | 372 | 469 | 435 | 412 | 1988 |
| Total | 1528 | 1932 | 1991 | 2201 | 2341 | |

FALCON

| Seeding rate lb/ac / Rate of Urea lb/ac | 20 | 40 | 60 | 80 | 120 | Total |
|---|---|---|---|---|---|---|
| 0 | 655 | 547 | 410 | 591 | 622 | 2825 |
| 50 | 525 | 508 | 514 | 524 | 548 | 2619 |
| 100 | 491 | 618 | 524 | 621 | 504 | 2758 |
| 200 | 578 | 705 | 529 | 557 | 518 | 2887 |
| 200 x 3 (5 wkly intervals) | 625 | 596 | 493 | 485 | 483 | 2682 |
| Total | 2874 | 2974 | 2470 | 2778 | 2675 | |

| ADV | Variance due to | V.R. |
|---|---|---|
| | Reps | 7.02** |
| | Variety (v) | 42.35*** |
| | rate of seed (R) | 1.43 n.s. |
| | V x R | 2.91 n.s. |
| | Rate of N | <1 n.s. |
| | V x N | <1 n.s. |
| | R x N | <1 n.s. |
| | V x N x R | <1 n.s. |

6. Head weight 2 ft x 8 rows (7")/sub plot

FALCON

| Seeding rate lb/ac / Urea rate lb/ac | 20 | 40 | 60 | 80 | 120 | Total |
|---|---|---|---|---|---|---|
| 0 | 727 | 675 | 542 | 615 | 617 | 3176 |
| 50 | 708 | 594 | 569 | 565 | 515 | 2951 |
| 100 | 590 | 649 | 721 | 665 | 517 | 3142 |
| 200 | 685 | 705 | 585 | 562 | 559 | 3096 |
| 200 x 3 (5 wkly intervals) | 709 | 651 | 572 | 581 | 459 | 2972 |
| Total | 3419 | 3274 | 2989 | 2988 | 2667 | |

PITIC

| Seeding rate lb/ac / Urea rate lb/ac | 20 | 40 | 60 | 80 | 120 | Total |
|---|---|---|---|---|---|---|
| 0 | 390 | 560 | 509 | 530 | 598 | 2587 |
| 50 | 363 | 483 | 509 | 506 | 669 | 2470 |
| 100 | 430 | 502 | 519 | 581 | 571 | 2603 |
| 200 | 421 | 485 | 452 | 562 | 524 | 2444 |
| 200 x 3 (5 wkly intervals) | 439 | 501 | 565 | 520 | 513 | 2538 |
| Total | 2043 | 2531 | 2554 | 2699 | 2815 | |

| ADV | Variance due to | V.R. |
|---|---|---|
| | Reps | 2.03 n.s. |
| | Variety (V) | 22.25*** |
| | Seeding rate (R) | <1 n.s. |
| | V x R | 4.93** |
| | Rate of N | <1 n.s. |
| | V x N | <1 n.s. |
| | R x N | <1 n.s. |
| | V x N x R | <1 n.s. |

## 7. Grain yield

FALCON bu/ac

| Rate of Urea lb/ac \ Seeding rate lb/ac | 20 | 40 | 60 | 80 | 120 | Total |
|---|---|---|---|---|---|---|
| 0 | 31.6 | 30.2 | 24.1 | 26.5 | 27.1 | 139.5 |
| 50 | 31.4 | 23.9 | 24.6 | 24.7 | 22.5 | 127.1 |
| 100 | 25.9 | 28.8 | 32.6 | 29.0 | 22.3 | 138.6 |
| 200 | 29.4 | 30.5 | 25.6 | 24.4 | 24.6 | 134.5 |
| 200 x 3 (5 wkly intervals) | 31.2 | 28.5 | 25.5 | 25.3 | 20.2 | 130.7 |
| Total | 149.5 | 141.9 | 132.4 | 129.9 | 116.7 | 670.4 |

PITIC bu/ac

| Rate of Urea lb/ac \ Seeding rate lb/ac | 20 | 40 | 60 | 80 | 120 | Total |
|---|---|---|---|---|---|---|
| 0 | 16.9 | 24.6 | 21.1 | 22.2 | 25.8 | 110.6 |
| 50 | 18.9 | 20.9 | 22.0 | 21.3 | 25.6 | 108.7 |
| 100 | 19.0 | 22.2 | 22.0 | 24.6 | 24.0 | 111.8 |
| 200 | 18.3 | 19.6 | 18.9 | 23.8 | 22.6 | 103.2 |
| 200 x 3 (5 wkly intervals) | 19.0 | 21.3 | 24.1 | 21.7 | 21.7 | 107.8 |
| Total | 92.1 | 108.6 | 108.1 | 113.6 | 119.7 | 542.1 |

Summary:

1. No differences between Pitic and Falcon in establishment density.
2. Tiller counts/unit area positive: Large response to seeding rate and nitrogen rate. No interactions. No differences between varieties.
3. Head counts/unit area: Falcon substantially more heads than Pitic. Positive response to rate of seeding, rate of N. Large variety x seeding rate interaction.
4. Plant weight at harvest/unit area: Falcon produced more dry matter/unit area than Pitic particularly at lower seeding rates. Positive response to seeding rate.
5. Head weight/unit area: Falcon substantially greater than Pitic, particularly at lower seeding rates.
6. Straw weight/unit area: Falcon greater than Pitic particularly at lower seeding rates.
7. Grain yield/unit area: Falcon substantially greater than Pitic, particularly at lower seeding rate.

Conclusion:

In this environment Falcon showed a greater ability than Pitic to form heads from an equal number of tillers/unit area, particularly at low seeding rates - i.e., lower numbers of tillers/unit area. Falcon produced a much greater weight of grain.

These results have still to be broken down into single plant components. i.e. tillers/plant, heads/plant, grains/head, grain size etc.

69MT13

# RATES OF SEEDING (5) X RATES OF NITROGEN (5) ON FALCON AND PITIC WHEATS

Location: Mt. Barker Research Station

Site: Gravelly loam. Old clover land cropped to oats 1968 (failed) - sprayed with paraquat/obquat, fallowed.

Measurements:
(1) Germination counts
(2) Tiller counts
(3) Head counts
(4) Head weight
(5) Grain yield

Total plant weight not measured because of severe lodging.

Design: Randomized block of varieties (2) x seeding rate (5) with 3 reps. These plots split into five for N (urea) treatments.

1. Germination counts. Assumed that surface applied urea would not affect germination. Counted 2 ft of rwo from 10 inside rows of seeding rates x varieties.

| Seeding Rate | Falcon | Pitic |
|---|---|---|
| 20 | 57 | 49 |
| 40 | 93 | 112 |
| 60 | 169 | 137 |
| 80 | 172 | 161 |
| 120 | 246 | 223 |

ADV
N.S. differences

2. Tiller counts. 2 ft x 8 rows/sub plot

FALCON

| Rate of seeding lb/ac / Rate of Urea lb/ac | 20 | 40 | 60 | 80 | 120 | Total |
|---|---|---|---|---|---|---|
| 0 | 515* | 906 | 1271 | 1135 | 1144 | 4971 |
| 50 | 529 | 839 | 1007 | 1108 | 1105 | 4588 |
| 100 | 561 | 803 | 1068 | 1042 | 1141 | 4615 |
| 200 | 594 | 892 | 928 | 856 | 1080 | 4350 |
| 200 x 3 (5 wkly intervals) | 565 | 792 | 1057 | 932 | 1063 | 4409 |
| Total | 2764 | 4232 | 5331 | 5073 | 5533 | 22933 |

PITIC

| Rate of seeding lb/ac / Rate of Urea lb/ac | 20 | 40 | 60 | 80 | 120 | Total |
|---|---|---|---|---|---|---|
| 0 | 540 | 678 | 1018 | 895 | 1140 | 4271 |
| 50 | 567 | 728 | 977 | 939 | 1046 | 4257 |
| 100 | 487 | 731 | 884 | 1050 | 966 | 4118 |
| 200 | 498 | 797 | 1003 | 939 | 979 | 4216 |
| 200 x 3 (5 wkly intervals) | 540 | 767 | 919 | 952 | 1105 | 4283 |
| Total | 2632 | 3701 | 4801 | 4775 | 5236 | 21145 |

* Figures are number of tillers in 48 ft of row.

3. Head counts. 2 ft x 8 rows/sub plot

FALCON

| Rate of Urea lb/ac \ Rate of seeding lb/ac | 20 | 40 | 60 | 80 | 120 | Total |
|---|---|---|---|---|---|---|
| 0 | 451* | 491 | 727 | 627 | 783 | 3079 |
| 50 | 448 | 685 | 801 | 730 | 868 | 3532 |
| 100 | 421 | 643 | 822 | 696 | 787 | 3369 |
| 200 | 506 | 616 | 704 | 729 | 714 | 3269 |
| 200 x 3 (5 wkly intervals) | 418 | 587 | 888 | 597 | 760 | 3250 |
| Total | 2244 | 3022 | 3942 | 3379 | 3912 | 16499 |

PITIC

| Rate of Urea lb/ac \ Rate of seeding lb/ac | 20 | 40 | 60 | 80 | 120 | Total |
|---|---|---|---|---|---|---|
| 0 | 426 | 561 | 647 | 592 | 627 | 2853 |
| 50 | 478 | 613 | 656 | 563 | 621 | 2931 |
| 100 | 484 | 496 | 633 | 733 | 632 | 2978 |
| 200 | 369 | 485 | 534 | 630 | 581 | 2602 |
| 200 x 3 (5 wkly intervals) | 460 | 546 | 599 | 619 | 599 | 2823 |
| Total | 2217 | 2704 | 3069 | 3137 | 3060 | 14187 |

* Figures are heads/48 ft of row.

4. Head weights. ( figures are weight of 300 heads)

FALCON

| Rate of Urea lb/ac \ Rate of seeding lb/ac | 20 | 40 | 60 | 80 | 120 | Total |
|---|---|---|---|---|---|---|
| 0 | 816 | 637 | 595 | 576 | 642 | 3266 |
| 50 | 791 | 646 | 563 | 633 | 609 | 3242 |
| 100 | 705 | 699 | 657 | 468 | 613 | 3138 |
| 200 | 770 | 651 | 569 | 620 | 604 | 3214 |
| 200 x 3 | 845 | 582 | 615 | 617 | 502 | 3161 |
| Total | 3927 | 3215 | 2995 | 2914 | 2970 | 16021 |

PITIC

| Rate of Urea lb/ac \ Rate of seeding lb/ac | 20 | 40 | 60 | 80 | 120 | Total |
|---|---|---|---|---|---|---|
| 0 | 754 | 713 | 584 | 723 | 626 | 3400 |
| 50 | 881 | 669 | 707 | 565 | 585 | 3407 |
| 100 | 819 | 728 | 657 | 712 | 642 | 3558 |
| 200 | 788 | 734 | 635 | 680 | 594 | 3431 |
| 200 x 3 | 860 | 752 | 731 | 675 | 588 | 3606 |
| Total | 4102 | 3596 | 3314 | 3355 | 3035 | 17402 |

5. Grain yield. derived from heads/28 ft and Grain weight/ 300 heads.

FALCON bu/ac

| Rate of seeding lb/ac / Rate of Urea lb/ac | 20 | 40 | 60 | 80 | 120 | Total |
|---|---|---|---|---|---|---|
| 0 | 52 | 43 | 62 | 50 | 71 | 278 |
| 50 | 50 | 62 | 59 | 56 | 74 | 301 |
| 100 | 41 | 63 | 71 | 60 | 69 | 304 |
| 200 | 52 | 54 | 57 | 63 | 60 | 286 |
| 200 x 3 | 46 | 53 | 76 | 49 | 63 | 287 |
| Total | 241 | 275 | 325 | 278 | 337 | 1456 |

PITIC

| Rate of seeding lb/ac / Rate of Urea lb/ac | 20 | 40 | 60 | 80 | 120 | Total |
|---|---|---|---|---|---|---|
| 0 | 44 | 56 | 49 | 59 | 57 | 265 |
| 50 | 55 | 56 | 61 | 43 | 51 | 265 |
| 100 | 55 | 49 | 57 | 76 | 57 | 294 |
| 200 | 38 | 49 | 46 | 59 | 47 | 239 |
| 200 x 3 | 50 | 54 | 59 | 55 | 48 | 266 |
| Total | 242 | 264 | 272 | 292 | 260 | 1330 |

Comment: (subject to Biometrical analysis)

1. Establishment density of Falcon and Pitic the same.

2. No obvious response to nitrogen. Apparently the killed off oatcrop in 1968 did not deplete soil nitrogen to any great extent. Can assume from the results the nitrogen supply was optimal.

3. Tiller counts. Very large response to seeding rate, up to highest rate no obvious differences between varieties.

4. Head counts. Large response to seeding rate up to highest rate, Falcon slightly greater number than Pitic.

5. Head weights. Pitic slightly greater weights than Falcon. Negative response to seeding rate.

6. Grain yield. Above 40 lb/ac no further obvious response to seeding rate by either variety. Falcon may be slightly superior to Pitic for yield, but probably not significant.

**

Conclusion: The Mexican semi-dwarf wheat varieties have performed very well under high fertility conditions overseas. There is considerable evidence that they have greater potential for yield than the Australia spring varieties because of greater number of flowers set per spikelet.

In this trial Falcon and Pitic were grown under almost optimal conditions for dryland wheat growing in Western Australia. The trial was planted early (21st May) into a completely weed free seedbed. Nutrition was near optimal. Seasonal conditions were near perfect. Grain yields were extremely high for Western Australia.

Pitics reputed superior potential for yield/unit area was not expressed under these conditions, although it is unlikely that they would be expressed under less optimal conditions. In addition Pitic lodged much more severely than Falcon in this trial. The Mexican semi-dwarfs have notoriously poor protein levels and dough characteristics.

This trial suggests that the Mexican semi-dwarf wheat varieties are unlikely to be superior to existing Australian varieties in Western Australia.

** 7. Grain size. 1000 grain weights for each treatment were taken. No differences between seeding rates or urea. Mean Falcon 121.3 gm/1000 grains; Pitic 117.1 gm/1000 grains. i.e. Falcon fractionally heavier/larger.