CANADA GRAINS COUNCIL

PROGRESS REPORT APRIL 1991 - JANUARY 1992

RISK MANAGEMENT GUIDE FOR WHEAT

INTENSIVE WHEAT MANAGEMENT

GENERAL OVERVIEW

RISK MANAGEMENT GUIDE

-No field trials were planned or undertaken during 1991.

-Work was continued on the following:

1) Reference sections - all sections written, most ready for formatting into printing/publishing mode.

2) Correlations between target yield, estimated yield at growth stage 31, soil moisture, ppt, temperature, N levels and final yields.

3) Target yield - N fertilizer recommendation systems are being evaluated for reliability and profitability. Systems being compared include:

a)RMG Target yield + linear plateau N recommendations with and without use of yield estimate update and split N applications. Integration of (a) into a budget generator program developed by A. Lyons and M. Kraut are being considered.

b) Manitoba provincial soil test nitrogen recommendations

c) Constant N application

4) Development of a computer model to estimate yield at growth stage 31 and 49 from soil water, expected precipitation, actual rainfall, temperature and estimate of yield components.

-Work has progressed slower than expected due to illness of David Rourke from March to August.

-Budget allocation for 1991-92 appear to be satisfactory to allow completion of the project up to a camera ready stage. Since it was decided that the RMG would be distributed on a cost recovery basis, no additional funds are required with the exception of provision of seed money to initiate the publishing mode.

-A formal annual meeting is not anticipated at this time, however sponsors will be called upon to review material to be published and individual and conference calls will be required to ensure satisfactory conclusion of the project.

INTENSIVE WHEAT MANAGEMENT

The IWM publication is in a near camera ready stage. The services of Coutts-Laursen Publications and Leech Printing have been employed to assist with the publication. A draft copy to be approved by the sponsors will be sent in late January. We hope to print 5000 copies of the publication in early February. Therefore we would ask that you return your comments to me as soon as possible. Final arrangements for distribution of the publication need to be made.

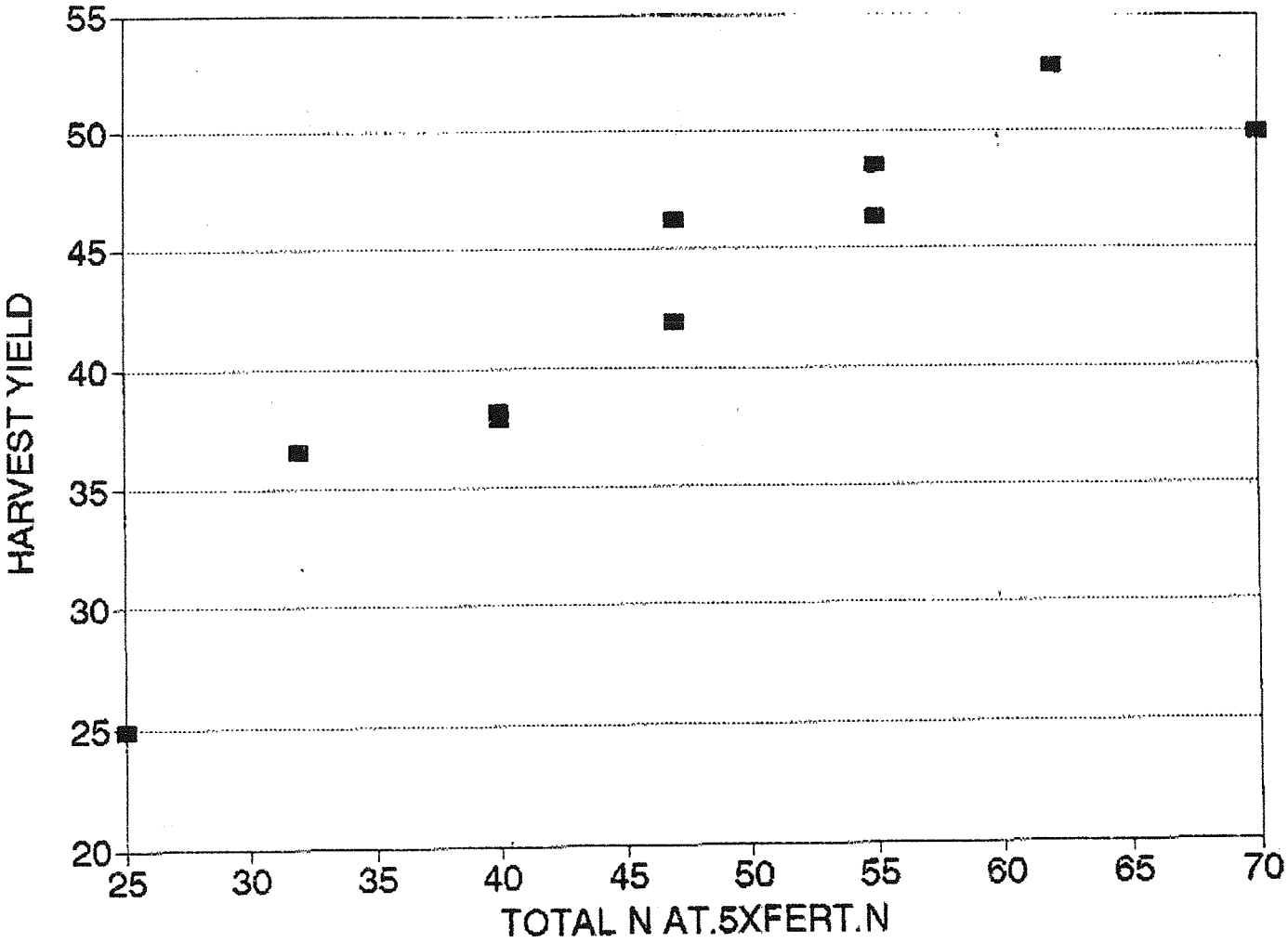
Compared to the first draft of the IWM publication, there are the following changes:

1) extra section on a) setting yield goals
   b) water management
   c) crop rotations
   d) seed quality
   e) assessing success.
2) more information on a) effectiveness of topdressing N
   b) Economics of IWM was expanded into a case study using results obtained from Minto.
3) the publication has been condensed from an anticipated 28 pages into 24 pages.

We would like to thank you for your support in this endeavour and we are very much looking forward to the completion of the project.

Best regards

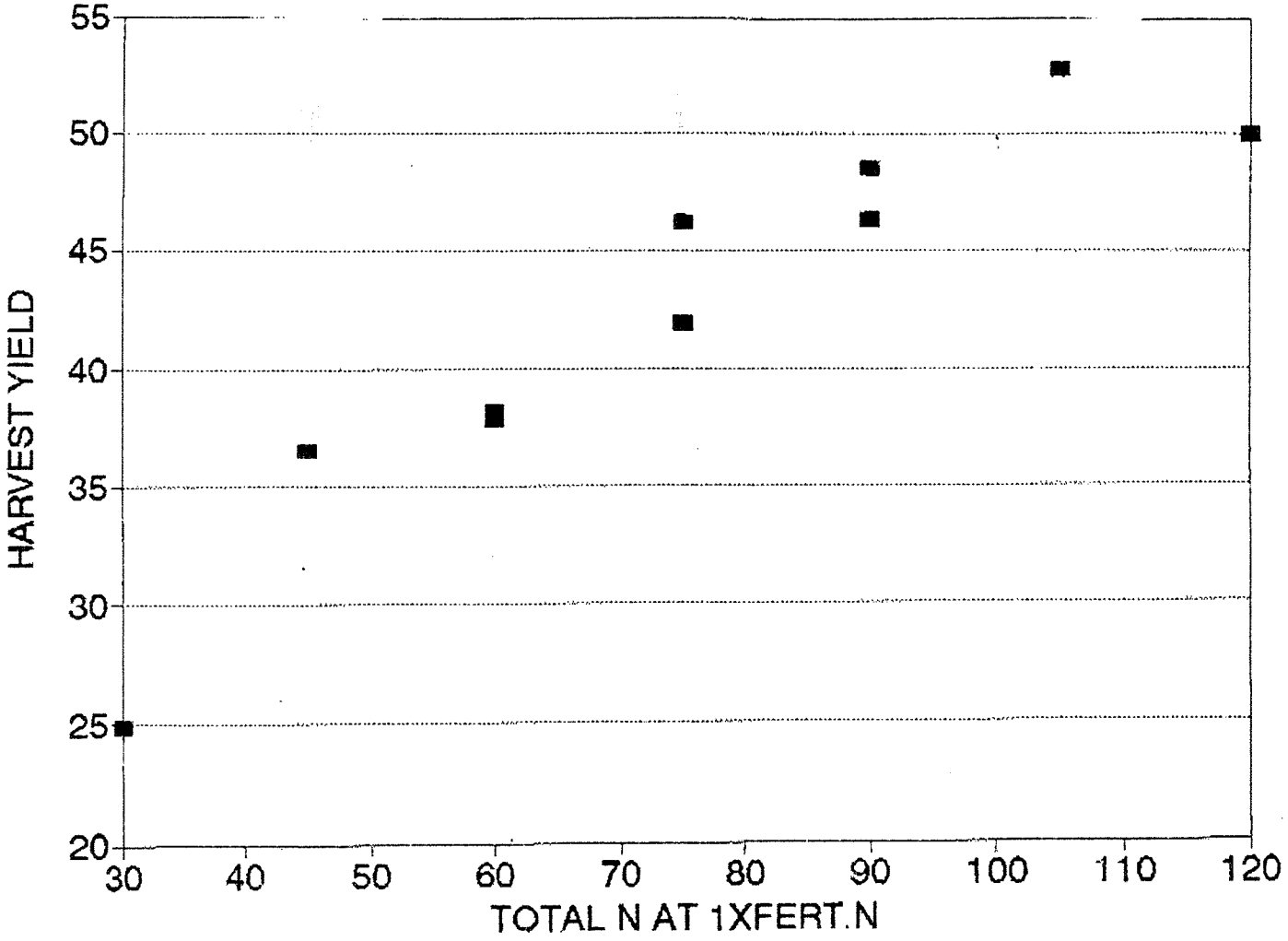
David Roberts.



MINTO KATEPWA 1990

r2 = .864

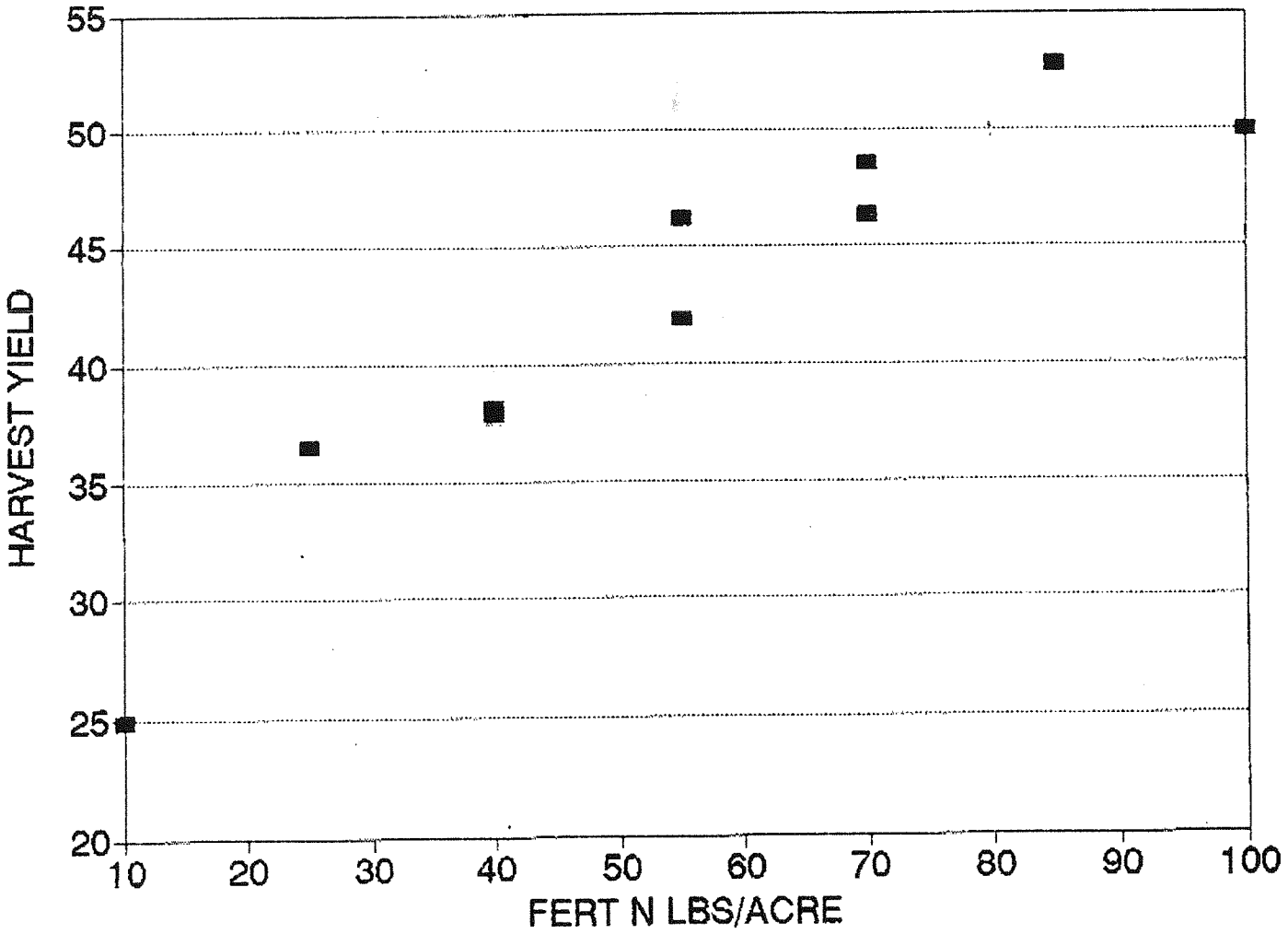
Y = 15.8 + .559X



MINTO KATEPWA 1991

r2 = .871

Y = 21.19 + .28X



MINTO KATEPWA 1990

MOST RESPONSIVE TRIAL (C071 DH)

$r_2 = .87$

$Y = 26.82 + .281X$

Examples of correlations and responses are as follows:

SERIES 1 - Yield and profit response of Katepwa and HY320 wheat to various N treatments.

SERIES 2 - Correlation of Target Yield = Available water x WUE to final yield for Katepwa and HY320.

SERIES 3 - Correlation of Yield Estimate GS31 vs. Harvest Yield - Yield component assessment only

SERIES 4 - Correlation of N to yield

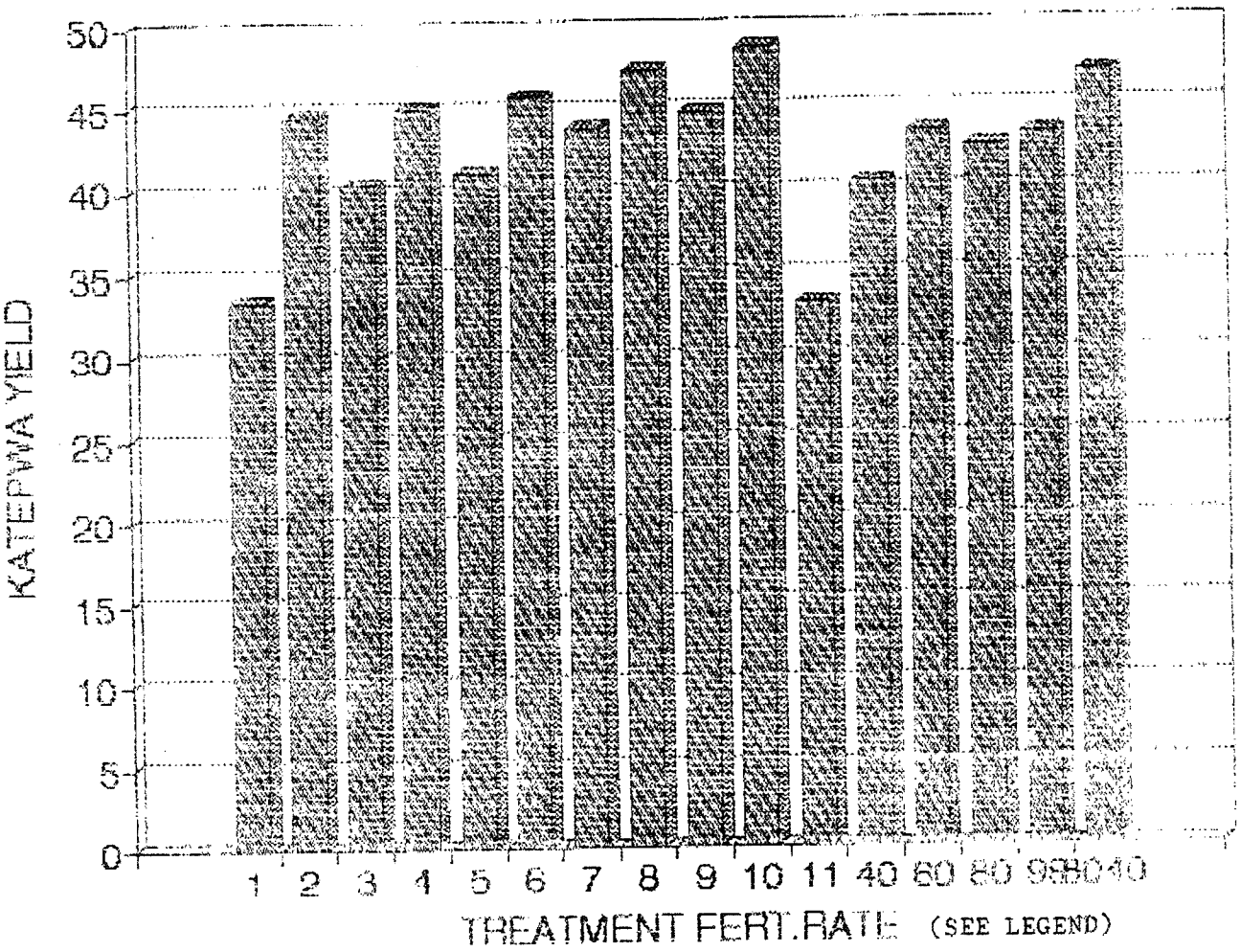
SERIES 1

Please find enclosed the fertilizer response analysis for Katepwa and HY320 for 1988-90. The treatment list follows.

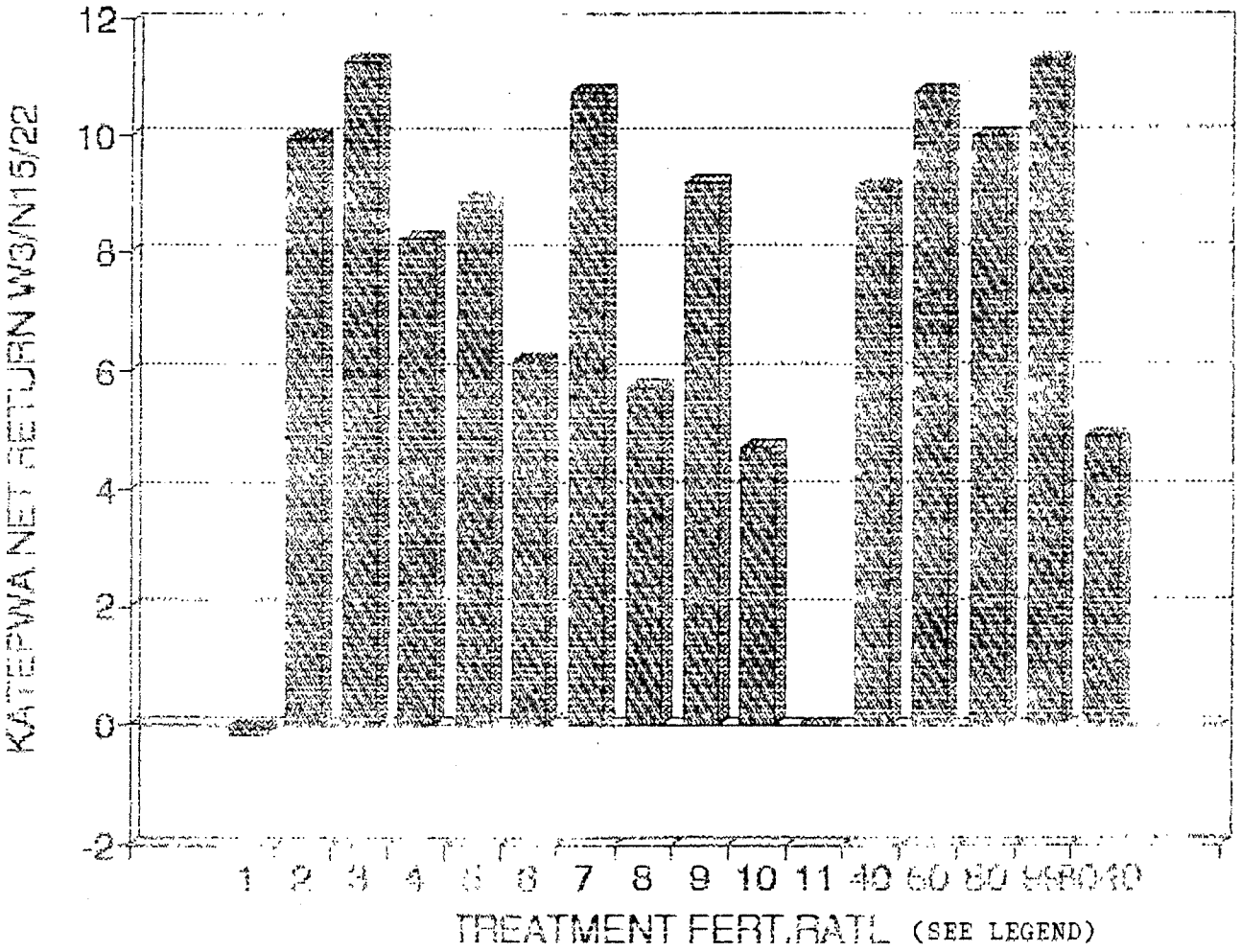
TREATMENT LIST (LEGEND)

1 = 50/0
2 = 50/50
3 = 75/0
4 = 75/50
5 = 100/0
6 = 100/50
7 = 125/0
8 = 125/50
9 = 150/0
10 = 150/50
11 = 0
40 = 40 lbs/acre constant
60 = 60 lbs/acre constant
80 = 80 lbs/acre constant
99 = standard provincial recommendation based on dry soil zone
target yield of 38 bu/acre
(Marginal return predicted 1.88-1.53 based on $4.50-3.68/bu wheat N @ .30)
8040 = 80/40 constant

*The only treatment not included is the optional use of split N as a function of yield tracking or other parameters.

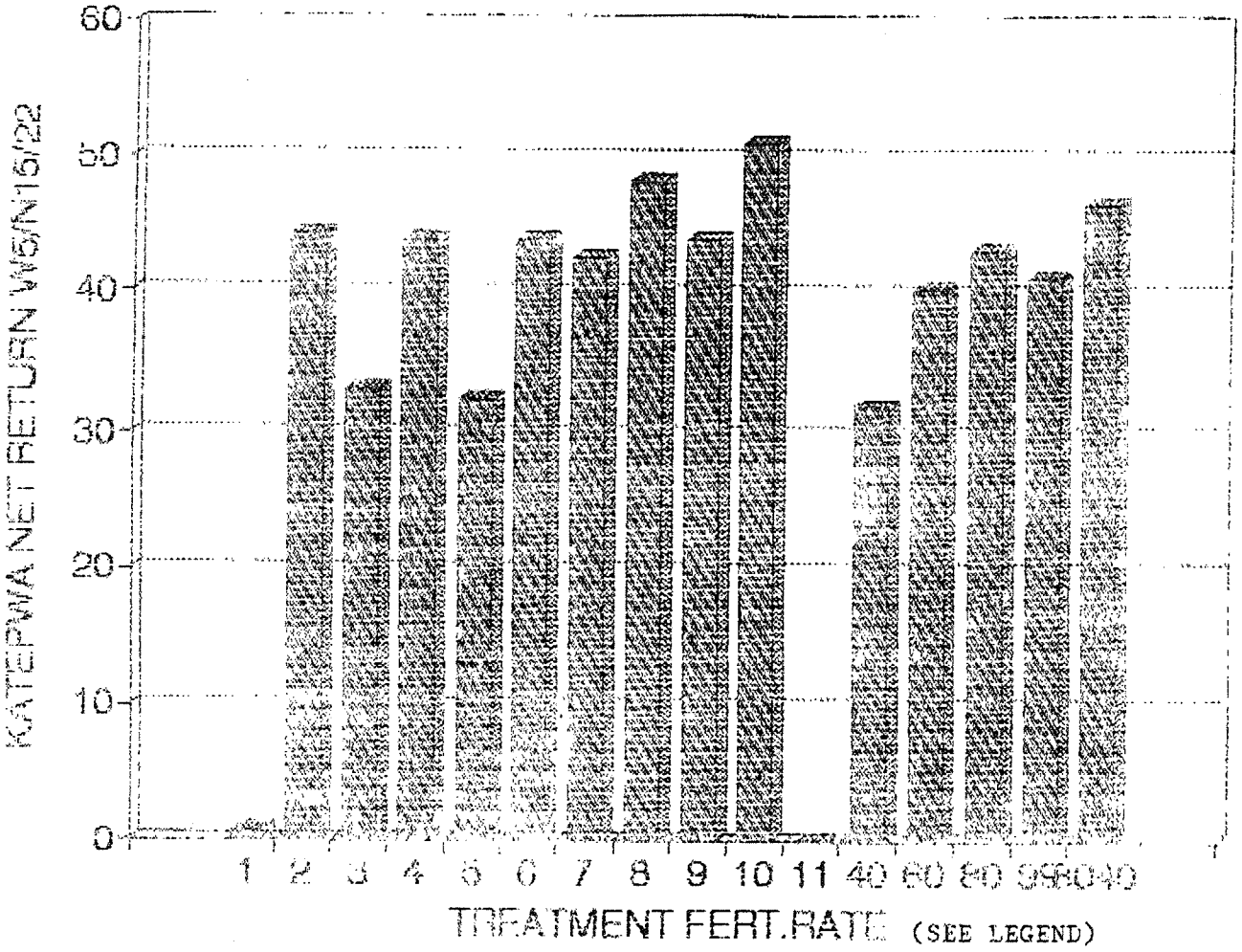


MINTO 1988-90
7 STATION YEARS
DRY, NORMAL, IRRIGATED



MINTO 1988-90
7 STATION YEARS
DRY, NORMAL, IRRIGATED

Wheat at $3.00
NH3 - N at .15
34-0-0 @ .22
Application at $2.00



MINTO 1988-90
7 STATION YEARS
DRY, NORMAL, IRRIGATED

WHEAT @ $5.00
NH3 - N at .15
34-0-0 @ .22

TABLE 8. EFFECT OF SPLIT N APPLICATION ON YIELD OF HY320 MINTO 1985-90

N TRMT LBS/ACRE	1985	1986	1987	1988	1989	1990	$\bar{X}$	MARGINAL NET RETURNS $
0	65	52	41	38	26	56	46	0
52	86	58	53	41	26	58	54	14.20
70	96	59	56	40	30	58	57	20.00
105	107	60	59	43	37	58	61	26.25
70/35	109	64	66	42	36	65	64	31.80
Std.Prov. Dry	73	58	53	38	26	57	50.6	9.10

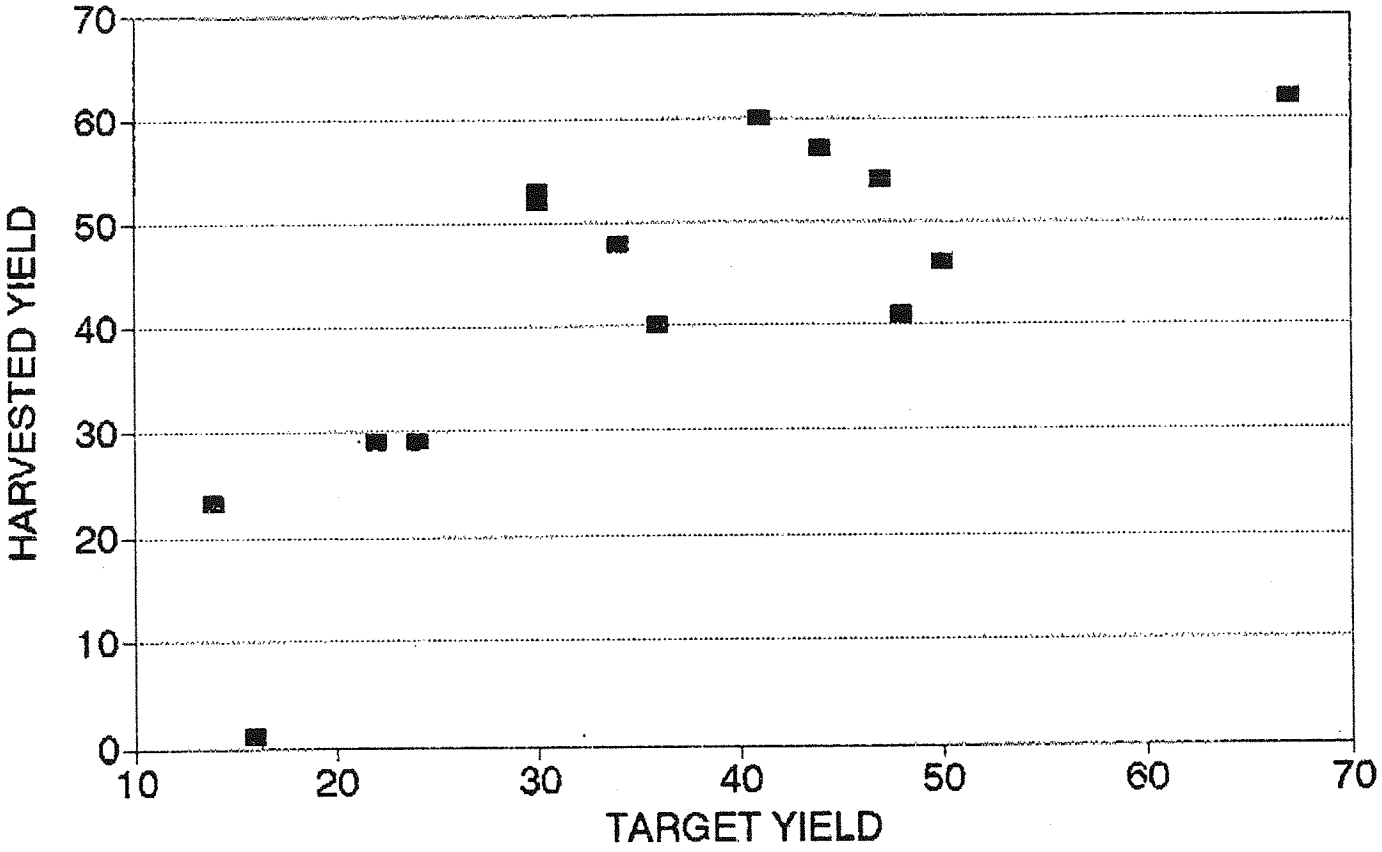
Returns @ wheat @ $3.00
NH3 N @ .15
34-0-0 @ .22
Application @ 2.00

NOTE the split is very positive in the 1985-90 data and the provincial recommendation is very negative compared to the 1988-90 data.

SERIES 2

TARGET YIELD VS HARVEST YIELD

MINTO 1988-90



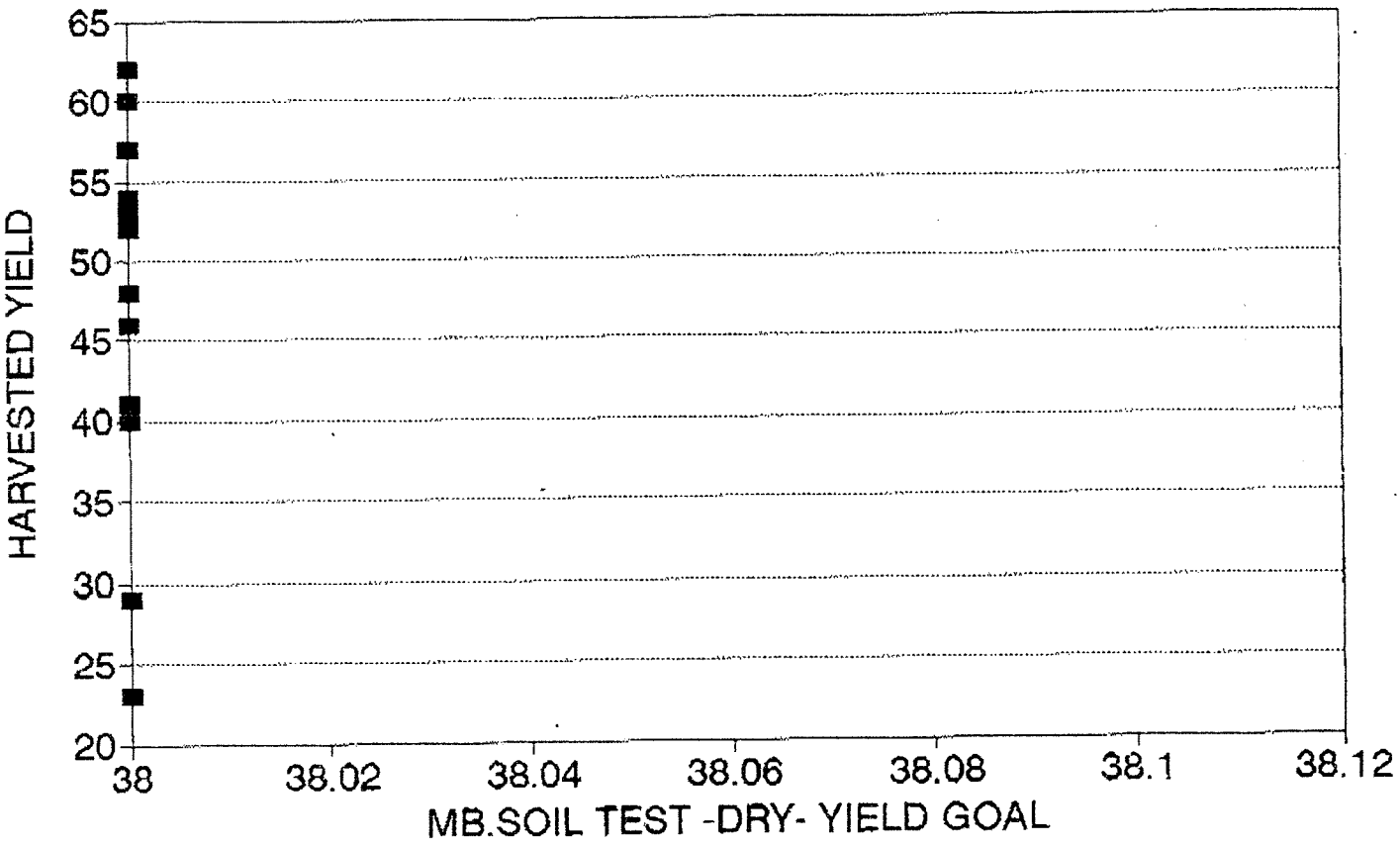
KATEPWA MINTO 1988-90
14 STATION YEARS

r2 = .56

Y = 11.2 + .8696X

TARGET YIELD VS HARVEST YIELD

MINTO 1988-90



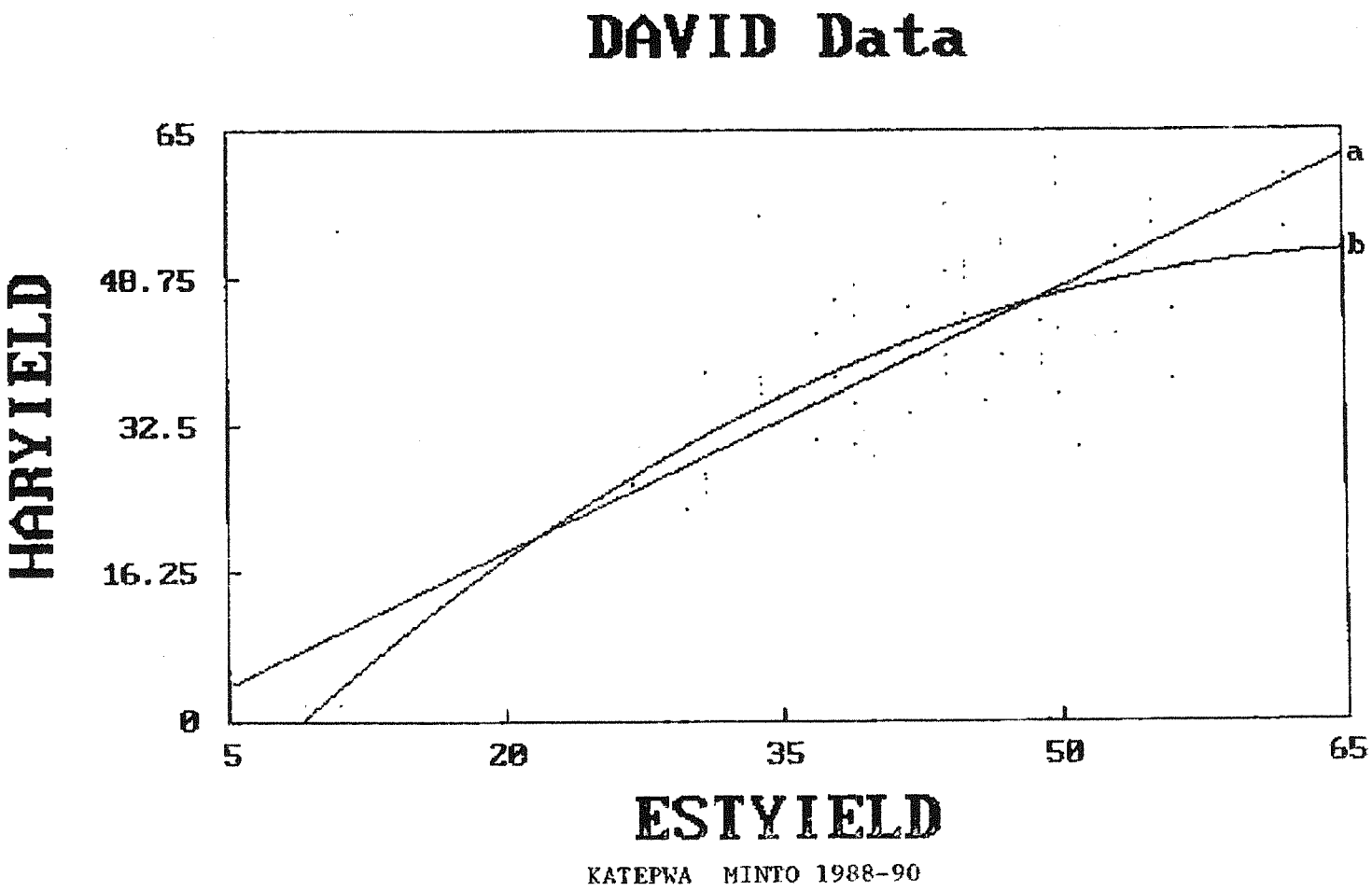
KATEPWA MINTO

14 STATION YEARS

r2 = 2.81 E - 17

Y = 39.609 + .16008X

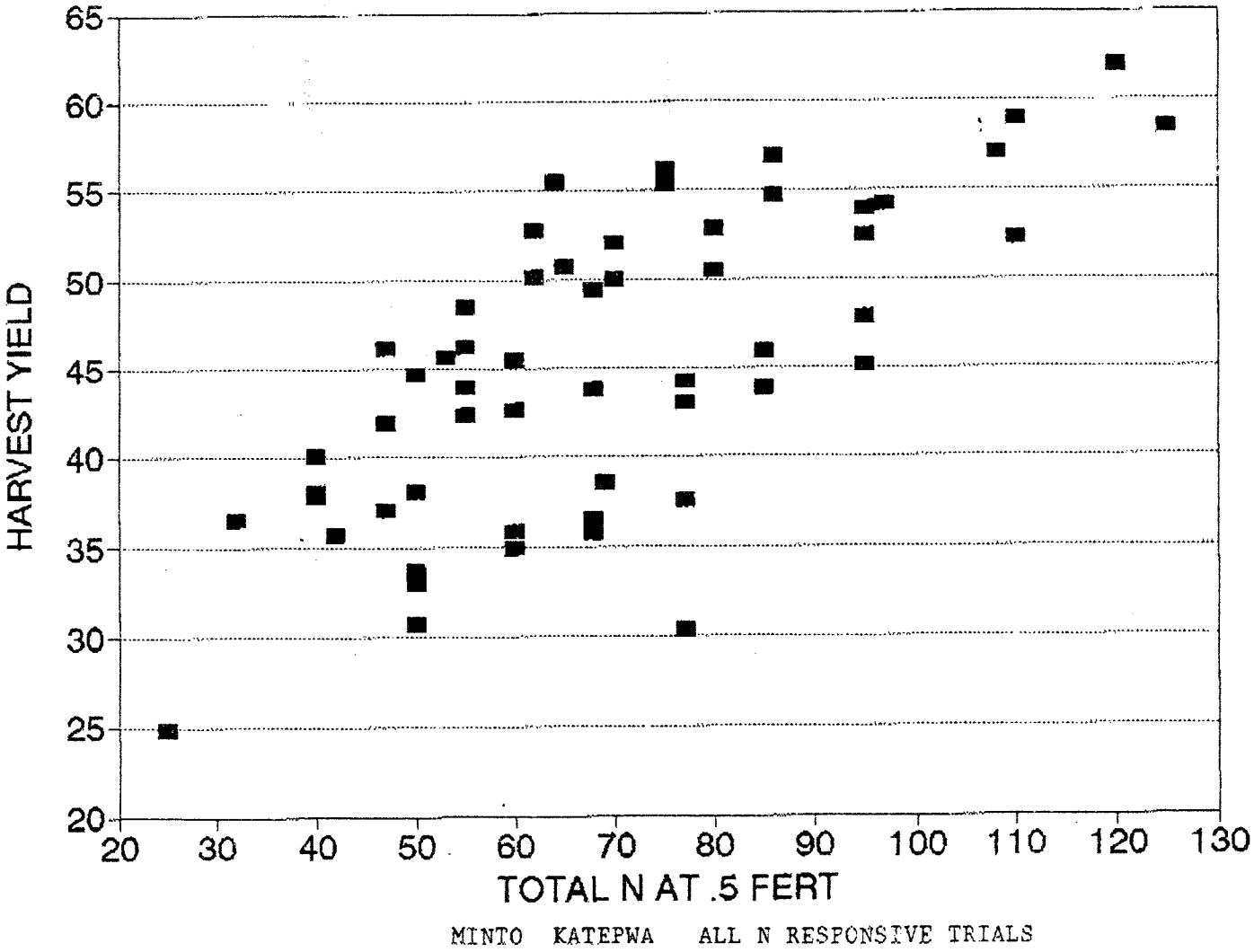
SERIES 3



Y = -1.1 + .975X

r2 = .67

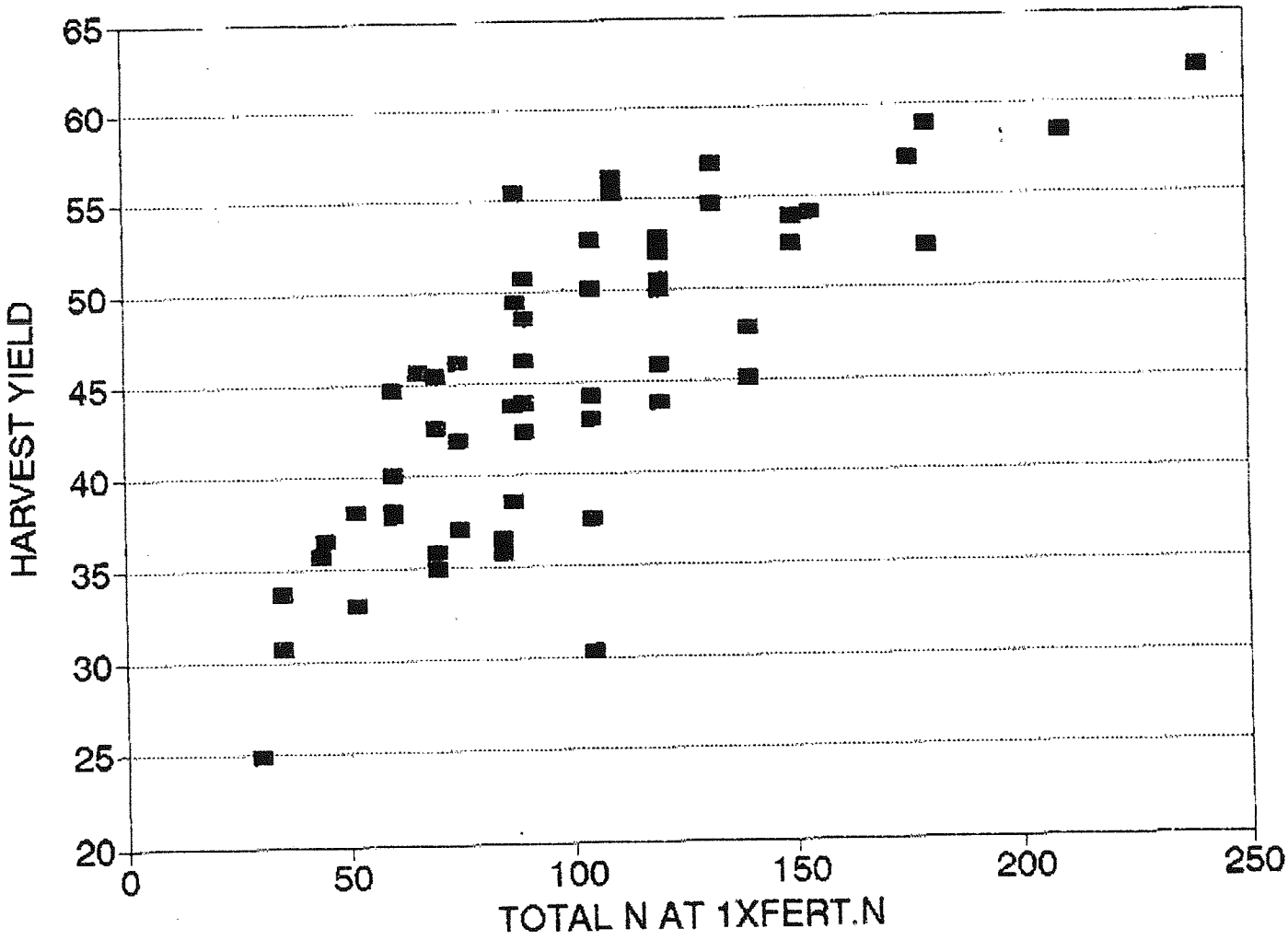
SERIES 4



Includes only N response trials

r2 = .49

Y = 26.72 + .2676X



MINTO KATEPWA ALL N RESPONSIVE TRIALS

KATEPWA - includes only N responsive trials

r2 = .49

Y = 26.72 + .2676X