The mean values obtained from samples of manure from fattening pigs were the following:
— % dry matter: Ca = 4,8; Mg = 1.5; Na = 1.1
— ppm dry matter: Zn = 1,120 — Fe = 2,620 — Cu = 838 — Mn = 576.
The results obtained in this study cannot be easily extrapolated to all types of manure. The kind of feeding greatly affects the variation in manure composition. However, for one and the same farm, the variations are small and determination of the dry matter leads to a good approximation of the fertilizing value of the manure. For establishing a general " manure plan " or for correcting errors committed in the feeding, an analysis of a sample of manure from each farm is required.

VII. — ECONOMICS

Financial requirements and economic returns in pig production under different production conditions

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Four types of pig rearing and fattening farms of identical size and productivity are analysed. The differences pertain to investment levels, labour requirements, feed production and the existence of a traditional farm system or not. The previsional study of six years is based on analyses of economic efficiency and of investment financing. The results are given before tax deduction. Return to total capital varies from one to three and the differences of return to own capital are much more important. The financial situation is difficult for production units with purchased feed without the support of a traditional farming system. Pig production under these conditions can only survive with a high productivity. The production units having particular advantages at their disposal (existing buildings, on-farm produced cereals, even partially, a lower feed cost) are able to realize their growth stepwise by fully employing available labour at the beginning of the process in order to overcome more easily the financial difficulties of production.

Financial requirements and economic returns in pig production according to productivity

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The author compares two pig producing farms with identical investment and financing conditions but different technical productivities: on farm A, performances correspond to those of 1975, on farm B, performances correspond to those of the best farms in 1975, i.e. 30 per cent of the farms studied. A six year period is considered starting from the moment of investment. Figures are obtained through a simulation of physical flows and a financing model, the PLANFI (I.N.R.A. - Crédit Agricole).
The results clearly indicate the superiority of farm B, net average return increases from 1 to 10,4 per cent, farm income, return to labour and capital and gross margin of self-financing

double as compared to farm A.   From a financial point of view, the cash flow of farm B is posi-
tive within three years whereas on farm A it is negative throughout the period.   At the end of
the period, net results have increased almost fourfold on farm B as compared to farm A.
    These differences indicate that productivity should be improved before considering a growth
of the production unit.   In the present case, farm A would obtain better results by reaching the
level of performances observed in the group of the best farms rather than by doubling the size
of the breeding unit.

Inflation and pig production

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    The present study deals with the incidence of the last 5 years of inflation on pig production
cost-price.
    The cyclic effect of inflation on animal feeding increases the advantage of home produced
feeds.   This advantage can be added to the constantly over-estimated amortizations and finan-
cial costs for the benefit of farmers established since many years as compared with young pig
producers whose qualifications can hardly compensate for the harmful incidence of inflation.
    To restore the balance within 5 years, it would be necessary to improve the productivity
of the sows (number of commercialized piglets /sow /year) and the feed conversion ratio by 4 stan-
dard deviations as compared with present means obtained in the technico-economical mana-
gement of pigs.

Financing of a pig production unit.
Theoretical approach to problems concerning investment costs, rates of interest and of self-financing
(Case of a rearing-fattening unit with a herd of 84 sows)

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    The author studies the relationships between rates of interest on loan, self-financing, redemp-
tion capacity and rates of return for a project with several productivity levels through simula-
tions calculated for a herd of 84 sows.
    Through this model, maximum rates (allowing redemption of loan) were defined for different
investment, productivity and self-financing levels.
    It is established that for average-performances, the rate of self-financing should vary between
0 and 33 per cent according to the average rate of interest and the value of investments.   Howe-
ver, for good performance, the need for self-financing is always null for the usual rates of interest.
    In order to obtain a significant prevision of the redemption capacity, it is necessary to con-
sider all investigated parameters (value of investments, technicity level, rate of interest on loan,
self-financing).   However, the anticipated productivity seems to be the determining factor
for obtaining the required redemption capacity and economic efficiency of the project.