Part of the clinical leg-weakness syndrome in growing pigs manifests itself mainly by crooked and/or deviated forelegs. The symptoms which imply imbalanced flexor tendons and weak joint ligaments become apparent at 30-45 kg bodyweight and seem to indicate an impaired development in growing-loaded connective tissues. Preliminary trials had indicated a beneficial effect of treating affected pigs orally with ascorbic acid. Among 14 severely affected 13 weeks old pigs 7 were given vit. C orally daily for 6 weeks. And at the end of the trial of the 7 treated pigs were cured or showed only slight symptoms. Among the untreated pigs 3 showed some improvement and remained crippled (Nielsen 1981). The present study was carried out to investigate whether an oral supplementation with ascorbic acid has a possible influence of a daily vitamin C supplement on the development of crooked and bend deviated forelegs in growing-finishing pigs.

Material and Methods: The experiment was carried out 16 pig-finishing units of a commercial herd with a history of a high incidence of crooked and bend deviated forelegs among fatteners. The trial comprised 19 pigs (9 Yorkshire pigs and 10 Danish Landrace pigs) treated with 0.5 g of ascorbic acid per day or 0.8 g of citric acid per day throughout the experimental period. An individual clini-c examination of the experimental pigs was performed at the beginning of the experiment and again when the pigs were at approximately 50 and 80 kg liveweight. The shape and position of the forelegs were recorded by a 4-step scoring system (normal; grade 1: slightly bend deviated, weak forelegs, grade 2: marked crooked deviated forelegs; grade 3: severely crooked, deviated forelegs, pigs laying down or walking on forefeet).

Results and Discussion: Table 1 summarizes the clinical symptoms observed in the different groups at 50 or 80 kg. It appears that fewer pigs in the ascorbic acid supplemented group developed clinical symptoms compared to the group with citric acid supplement. A slightly better effect of vit. C supplementation on this type of leg-weakness syndrome was not prevented by the use of citric acid. Since the application form only would allow for minor differences in the amount of vit. C consumed daily by individual pigs, relative vit. C deficiency appears to be the only cause of this type of leg-weakness in the mentioned age group. However, an earlier occurring subclinical developmental defects in the young connective tissues can not be excluded. From studies in man, guinea pigs and other species which are not able to synthesize ascorbic acid themselves, it is well known that vit. C is essential for the normal development and function of connective tissues, probably due to its participation in the synthesis of the two collagen amino acids, hydroxyproline and dehydroxylysine (1). Although, pigs are a species which genetically possess the enzyme L-gulono-lactone oxidase and thus are capable of synthesizing ascorbic acid, this does not imply that sufficient amount is synthesized in all age groups or by all genetic lines. In other species capable of synthesizing vit. C, even fatal deficiency has been encountered (3). Sows milk contains a considerable amount of ascorbic acid and although a great variation between sows has been observed (3). Newborn piglets and sucklings have a high ascorbic acid plasma level (4) which decreases towards and at weaning (5). The significance of the postweaning drop in ascorbic acid plasma level is not clear. Further studies may show whether dietary vit. C supplementation from weaning on will protect better against the described type of leg-weakness than the reported supplementation from 30 kg liveweight was found to be effective.

Since ability to synthesize ascorbic acid is hereditary, dietary supplementation of pig rations with vit. C should not be recommended in breeding herds. Such a supplementation could mask the spread of lines with a low ability or even an otherwise selflimiting fatal lack of ability to synthesize ascorbic acid, which in turn might prove to be an overall economical disadvantage for the pig industry. In production herds with some types of leg-weakness, dietary vit. C supplement may be an aid in controlling the problem.

Conclusion: In production herds with some types of leg-weakness, dietary vit. C supplement may be an aid in reducing the problem. General vit. C supplement in breeding herds is not recommended.