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تحضير وتقييم لقاح زيتي ضد ميكروب الميكوبلازما جاليسبتكم  
١ - تأثير اللقاح على إنتاج البيض وانتقال الميكروب في البيض

عادل سليمان ، صلاح موسى ، ابراهيم سكر ، عبداللطيف بيومي\*

تم تحضير لقاح زيتي ضد مرض الميكوبلازما معامل بالبيتا بروبيولاكتون \* تم تقييم هذا اللقاح بحقنه مرتين في أمهات دجاج اللحم التي أظهرت تحسنا طفيفا في نسبة إنتاج البيض الا أنه لم تظهر الانخفاضات الحادة في منحنى إنتاج البيض على مدار الموسم \*  
أظهر عزل الميكروب في بيض الدجاج المحصن انخفاضا شديدا وتحسنت نسبة الفقس كذلك ظهر أن مستوى الاجسام المضادة المانعة لتلازن الدم ارتفاعا ملحوظا مقارنة بالدجاج الغير محصن \*

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**EVALUATION OF INACTIVATED MYCOPLASMA  
GALLISEPTICUM OIL-EMULSION BACTERIN  
I. EFFECT OF EGG TRANSMISSION AND EGG PRODUCTION**  
(With 3 Figs.)

By  
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**SUMMARY**

An oil-emulsion, betapropiolacton inactivated bacterin of *Mycoplasma gallisepticum* was prepared. The vaccine was inoculated twice in Meat-type parent flock. Egg production was insignificantly increased but birds were protected against transient severe egg production drop.

*Mycoplasma* isolation from incubated eggs was greatly reduced in vaccinated birds.

Hatchability rate was also increased. Haemagglutination inhibition titer in vaccinated birds was greatly higher than in non vaccinated birds.

**INTRODUCTION**

Most of the economic losses in poultry farms are related directly or indirectly to *Mycoplasma gallisepticum* (MG) infection, with or without complicating factors. Marked decrease of egg production was noticed in early infected hens with (MG). It was also reported that infected hens transmit infection to their progenies via transovarian transmission, (FABRICANT, *et al.* 1959; JERSTAD, 1964; YODER, 1980; GLISSON and KLEVEN, 1985).

Several types of (MG) vaccines were reported, as heat-sensitive vaccine, LAM and LIN (1984); KARACA and LAM (1986). Inactivated oil-emulsion bacterin YODER, *et al.* (1984); GLISSON and KLEVEN (1984); YODER and HOPKINS (1985); GLISSON and KLEVEN (1985), or inactivated bacterin with different adjuvants HAYSTU, *et al.* (1975).

Use of inactivated (MG) bacterin in hens before the onset of egg production decreased the severity of egg production drops associated with (MG) infection during egg production season, HILDEBRAND, *et al.* (1983).

**This work was carried out to describe:**

- 1- Preparation of inactivated MG oil-emulsion bacterin.
- 2- Its effect on egg production and
- 3- Its effect on egg transmission in already infected commercial parent flock.

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A. SOLIMAN, et al.**MATERIAL and METHODS****Preparation of bacterin:**

Ten liters of bacterin-heart infusion broth was inoculated with 250 ml of 48 hrs. broth culture of MG and incubated for three days at 37°C. The culture was centrifuged at 13000 r.p.m. for thirty minutes at 48. The deposited cells were reasuspended in 7.0 Phosphate buffered saline (PBS) with 1% packed cell volume (PCV) antigen, then inactivated with 0.1% beta propiolactone for three hrs. at 25°C. The inactivated antigen was centrifuged and resuspended to contain 5% pcv, 4% tween - 80 was added to the antigen. One part of the aqueous antigen in PBS was added slowly to 4 parts of oil containing 10% Arlacel-80 in stainless steel blender to obtain final oil-emulsion bacterin containing 1% PCV of antigen, YODER (1979).

**CHICKENS:**

Meat-type parent flock at Kena Governorate, Egypt was used. Birds had history of MG infection proved by isolation, serum plate agglutination (SPA) and hemoagglutination inhibition (HI) tests. Serologically all birds were negative to Mycoplasma aynoviae (MS). Birds were divided into two groups. One house of 3500 birds was subcutaneously vaccinated against MG with 0.5 ml of the bacterin at 20 and 24 weeks of age. The other three houses served as non vaccinated control.

**ANTIGENS:**

- a) Standard antigen for MG and MS were supplied by intervet laboratory - Holland.
- b) HI antigen, a locally prepared antigen was used, SOLIMAN (1982).

**Evaluation of the bacterin:**

- 1- Data of egg production was recorded until 50 weeks of age.
- 2- Data on egg fertility and hatchability was collected for vaccinated and control birds.
- 3- Serological Studies:  
Thirty serum samples were monthly collected from both vaccinated and control groups until 50 weeks of age. Sera were subjected to Serum Plate Agglutination (SPA) after ADLER and YAMAMOTO, (1956) and HI test YODER (1980).
- 4- Egg transmission:  
The system of egg incubation in the tested farm allowed the authors to obtain 25 infertile and dead in-shell embryos weekly from both vaccinated and control groups. Yolk samples were collected aseptically and subjected for culturing.

**RESULTS**

Data of egg production revealed insignificant increase in laying rate of the vaccinated group in comparison with the unvaccinated birds, but transient severe egg production drops were observed in the unvaccinated birds (Fig. 1).

Results of egg transmission as illustrated in Fig. 2 showed that the recovery rate of MG from 500 eggs was greatly reduced in vaccinated group (4.5%), while reached 15% in eggs of unvaccinated birds.

The hatchability rate of incubated eggs was 87% in vaccinated group and 83% in control birds.

### MYCOPLASMA VACCINATION IN LAYERS

Fig. 3 shows the results of the HI test in both groups. The HI titer in vaccinated birds was always higher than that of unvaccinated group. Low titers were detectable by HI test till two weeks post-vaccination, titers increased reaching 1:160 mean HI titer at 8th week post-vaccination. In addition, the curve of HI titer in the unvaccinated birds was irregular and wavy.

### DISCUSSION

Although egg production was insignificantly increased in vaccinated birds, birds were protected against transient severe egg production drops observed in non vaccinated birds. Such drops could be attributed to history of *Mycoplasma gallisepticum* infection in the farm.

The degree of egg transmission of *Mycoplasma galliseptica* was greatly decreased in vaccinated chickens compared with unvaccinated birds. Similar results were obtained by GLISSON and KLEVEN, 1984.

Egg transmission in non vaccinated birds showed variable results probably due to field infection and medication programs.

Haemagglutination inhibition titres were higher in vaccinated birds. The wavy appearance in the curve of haemagglutination inhibition titre in the non vaccinated birds probably reflect field infection as also reported by YODER and HOPKINS, 1985.

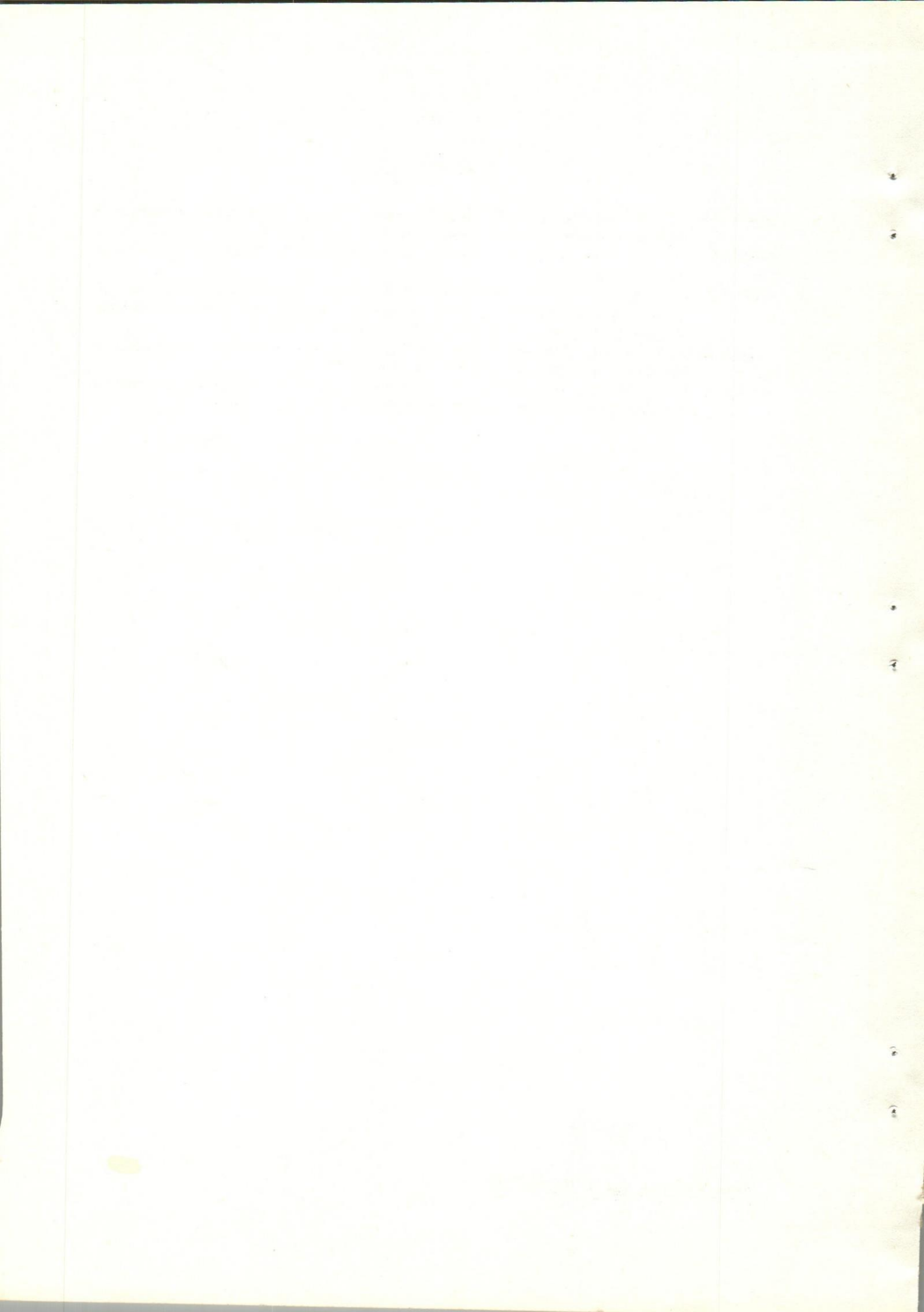
The slight increase in the hatchability rate noticed in the vaccinated birds could be related to the decrease in *Mycoplasma gallisepticum* transmission and subsequently the embryonic deaths caused by *Mycoplasma gallisepticum*.

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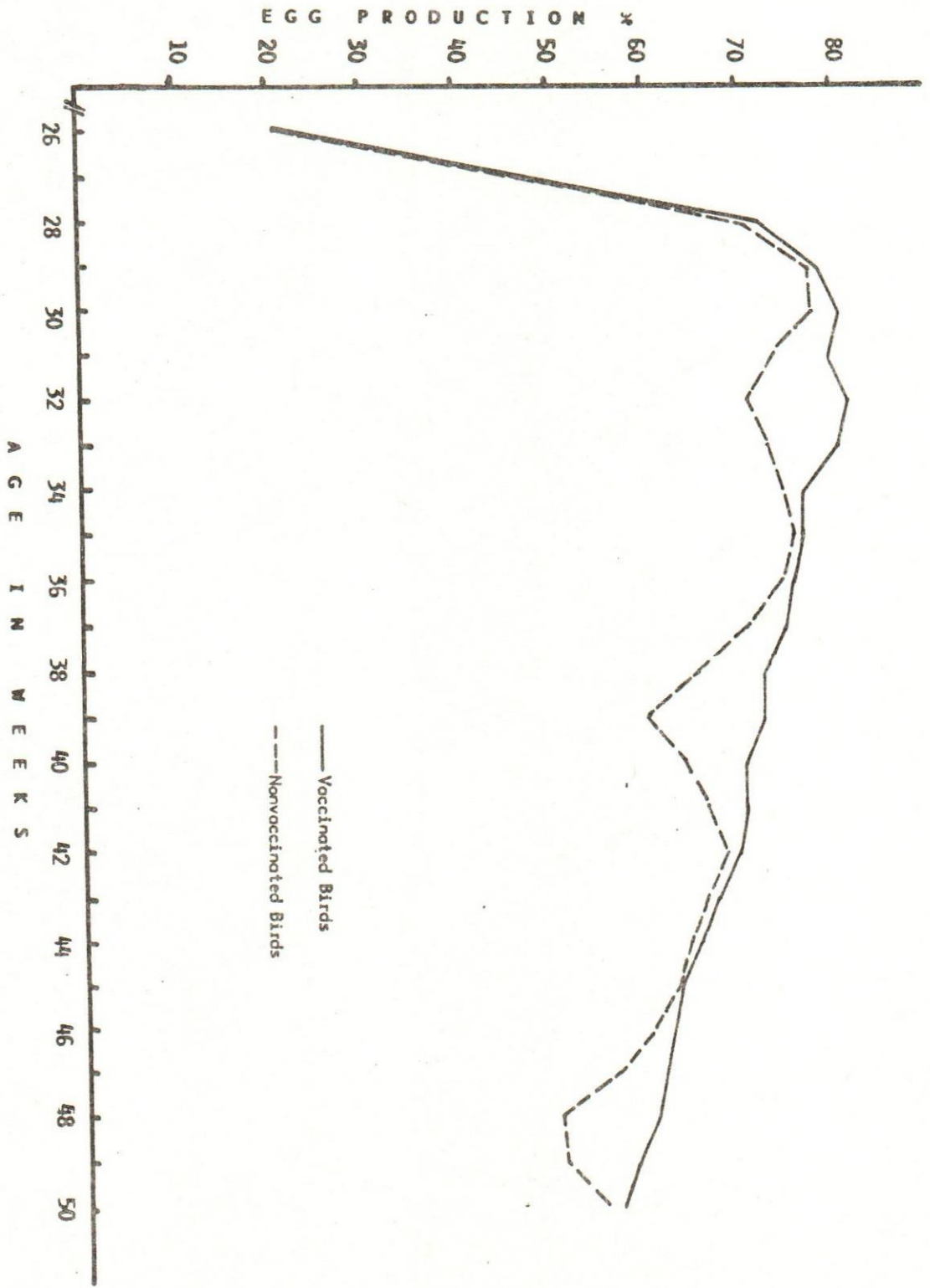
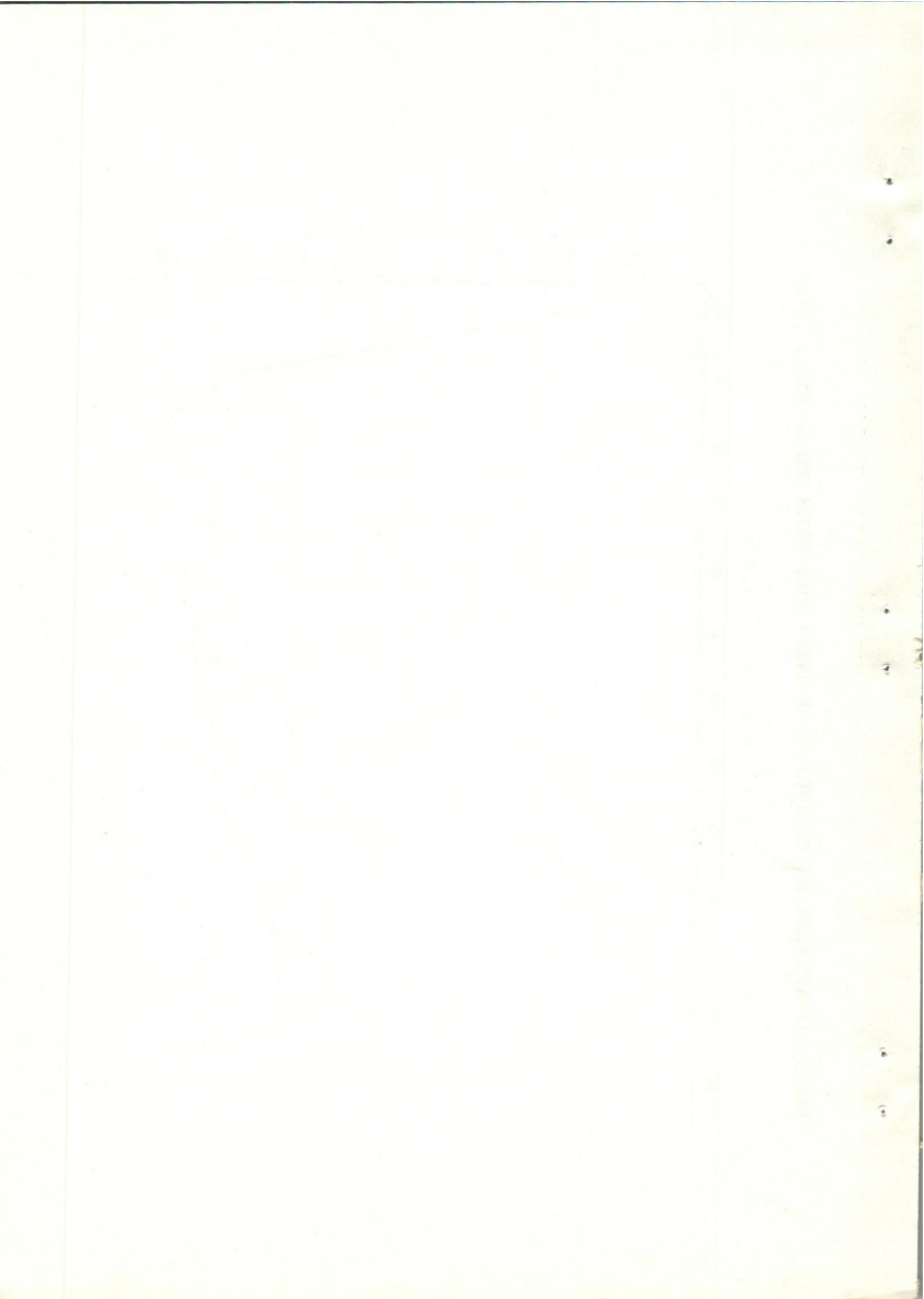


Fig. 1: SHOWS EGG PRODUCTION CURVE IN VACCINATED AND UNVACCINATED BIRDS.





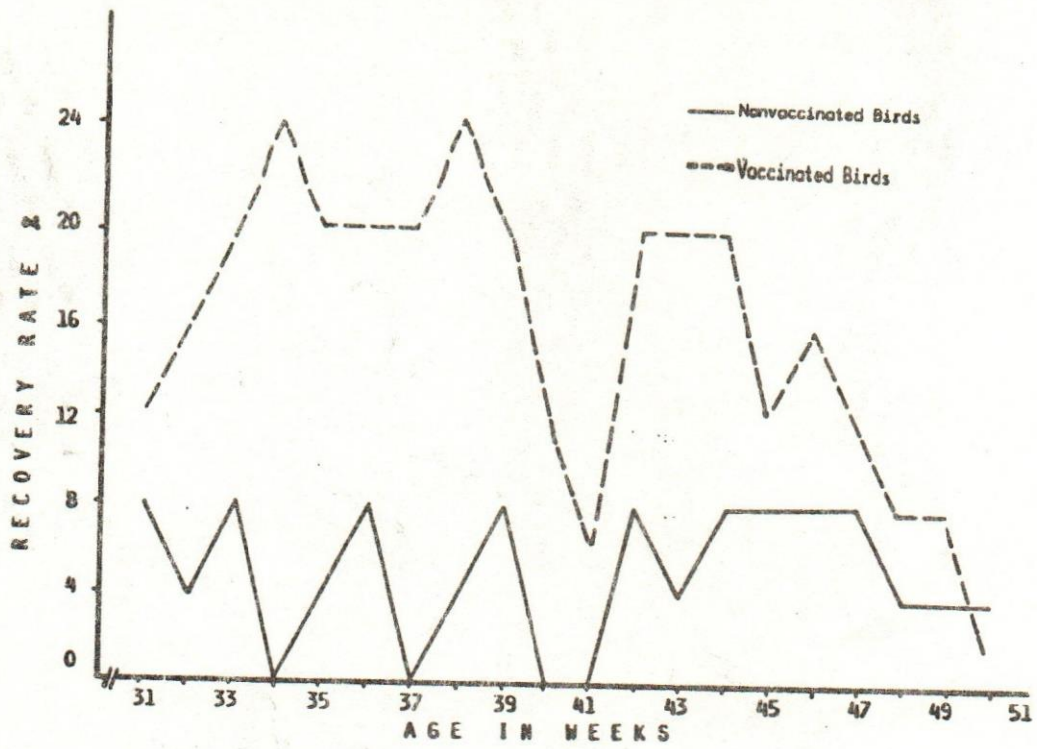


Fig. 2: SHOWS RATE OF MG RECOVERY FROM INCUBATED EGGS.

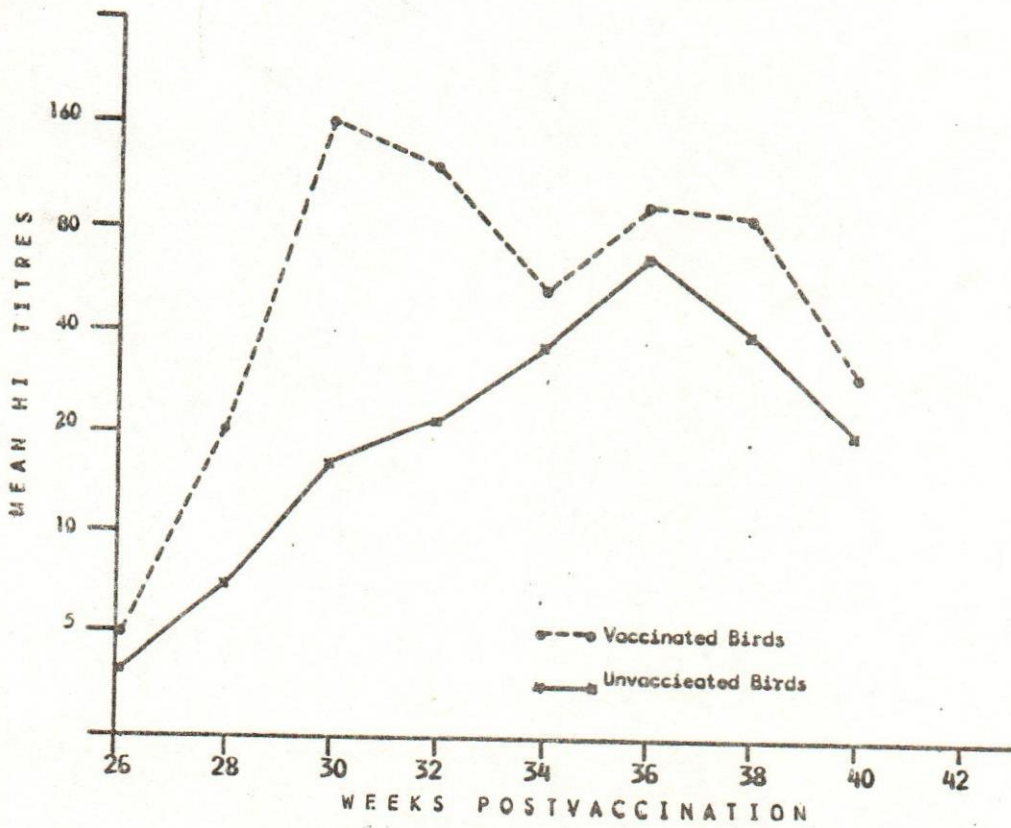


FIG. 3: SHOWS HI TITERS IN VACCINATED AND UNVACCINATED BIRDS.

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