



# ACTIVITY OF THE THYROID SYSTEM AFTER ARTIFICIAL INSEMINATION OF DAIRY COWS WITH DIFFERENT REPRODUCTIVE ABILITIES

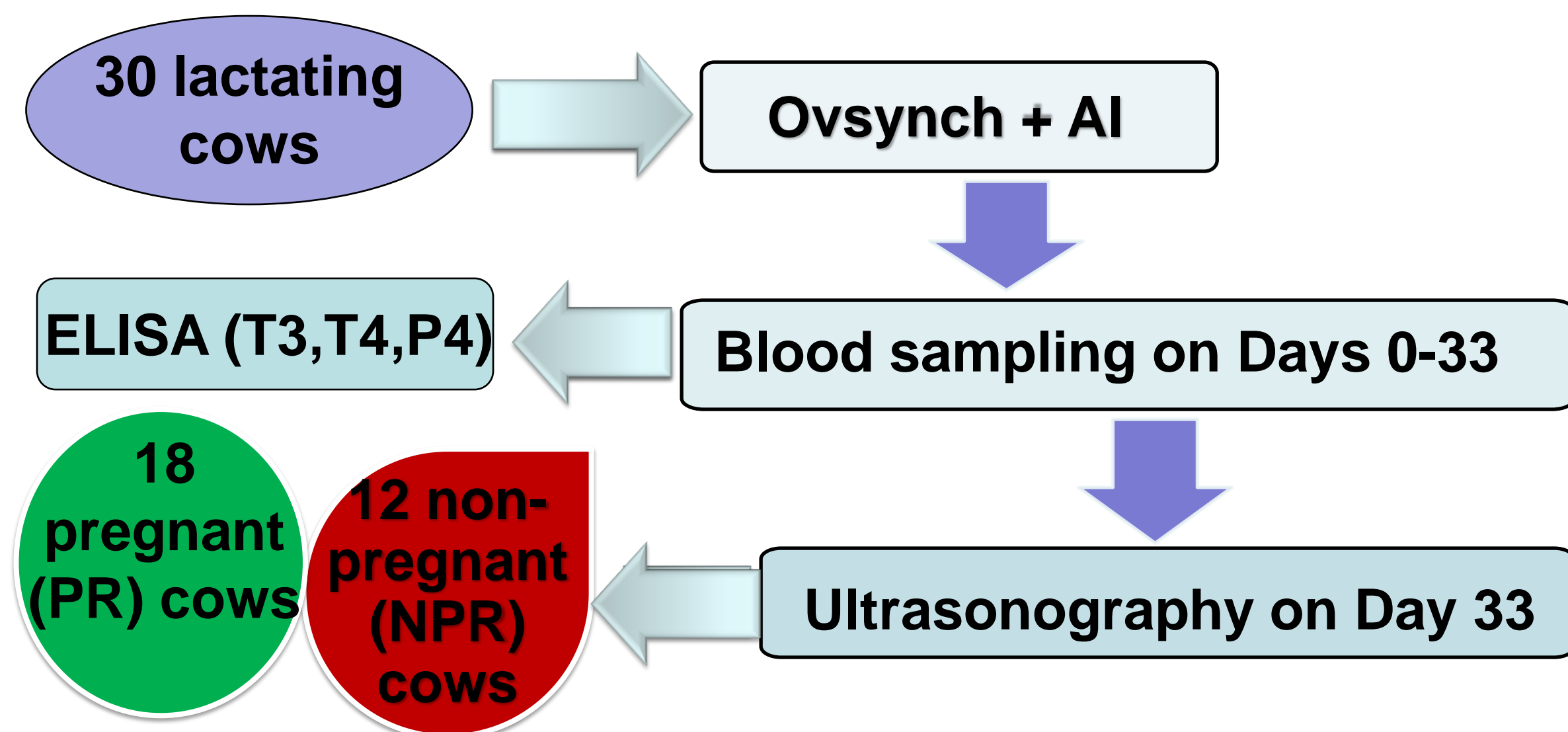


I. Lebedeva, O. Aleynikova, O. Mityashova, A. Solomakhin

## Introduction

Thyroid hormones can affect female fertility in different species including cattle. The aim of the present research was to study thyroid profiles on the day of insemination and during the first month after insemination in dairy cows depending on the pregnancy success.

## Methods



## Conclusions

- During the first month after insemination, levels of total T4 and T3 were constant in PR cows and varied significantly in NPR cows.
- In NPR cows, the revealed changes in the thyroid profiles may be due to the association with the estrous cycle, suggesting their possible use as additional markers for the pregnancy success.

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## Results

The serum concentration of thyroxine (T4) did not change considerably during the studied period in PR cows and decreased between Days 7 and 14 after AI and then increased by Day 33 in NPR cows (Fig. 1). The total triiodothyronine (T3) content in the blood of PR cows was relatively constant for 1 month (Fig. 2). In NPR animals, this content was high before insemination, reached a maximum value on Day 7 and then decreased 1.8-fold by Day 14. Meanwhile, on Day 7, the level of total T3 in NPR cows was 1.4 times higher than in PR cows. The content of reverse T3 (rT3) in the blood was the highest on Day 0 and decreased 1.2-fold on Day 14 in animals of both groups (Fig. 3). The concentration of free T3 (fT3) did not depend on the pregnancy success and did not change during the studied period (Fig. 4).

Fig. 1. Serum levels of total T4 during the first month after AI of cows

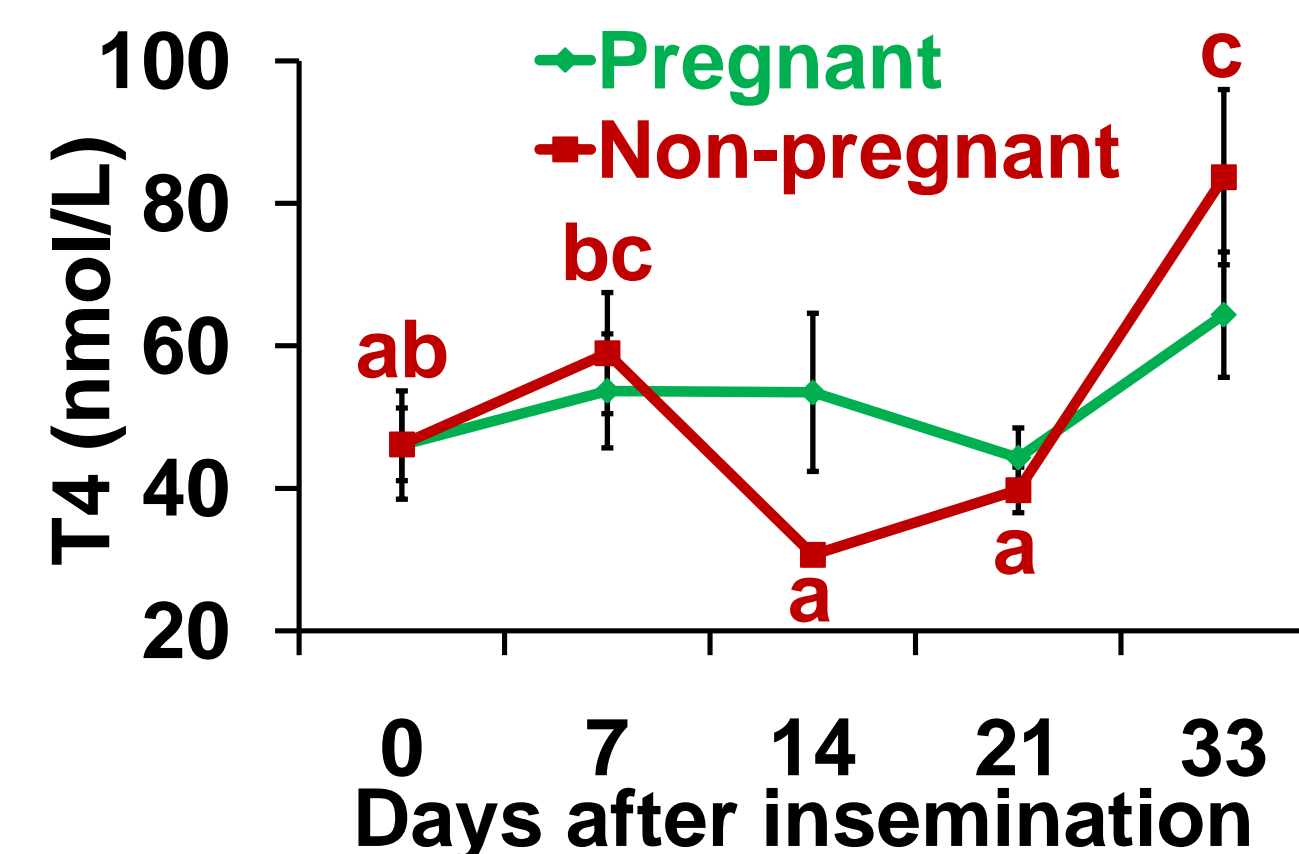


Fig. 2. Serum levels of total T3 during the first month after AI of cows

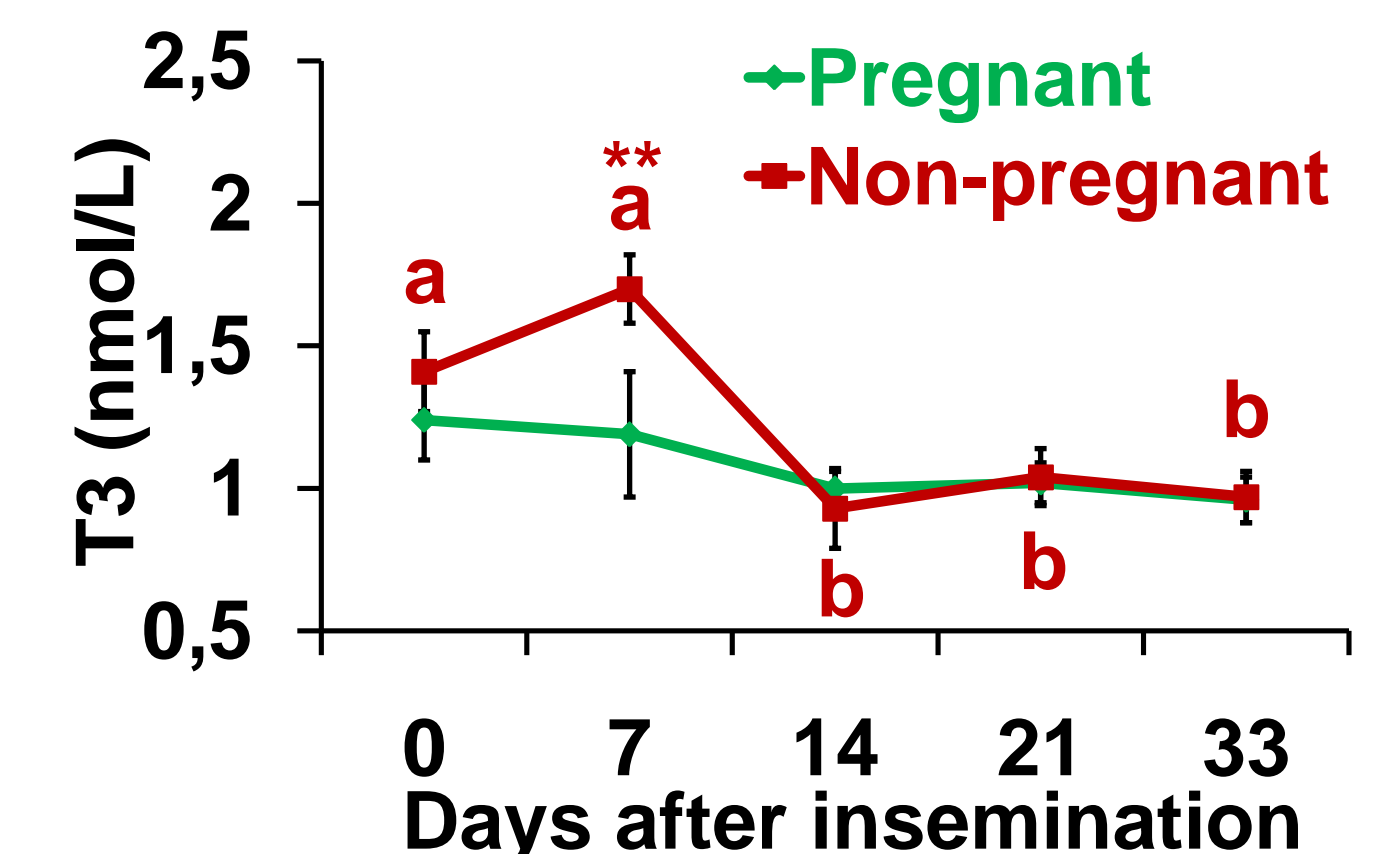


Fig. 3. Serum levels of reverse T3 during the first month after AI of cows

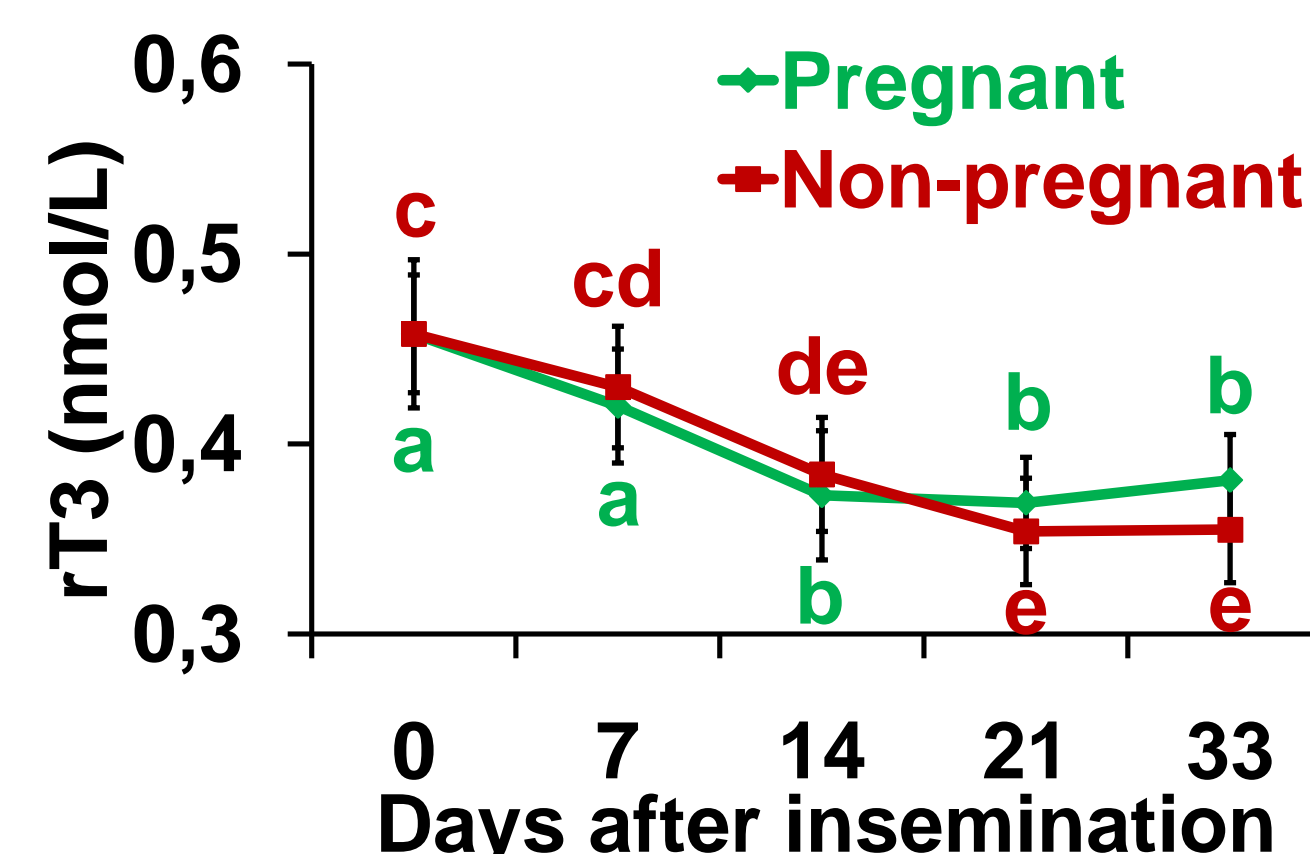
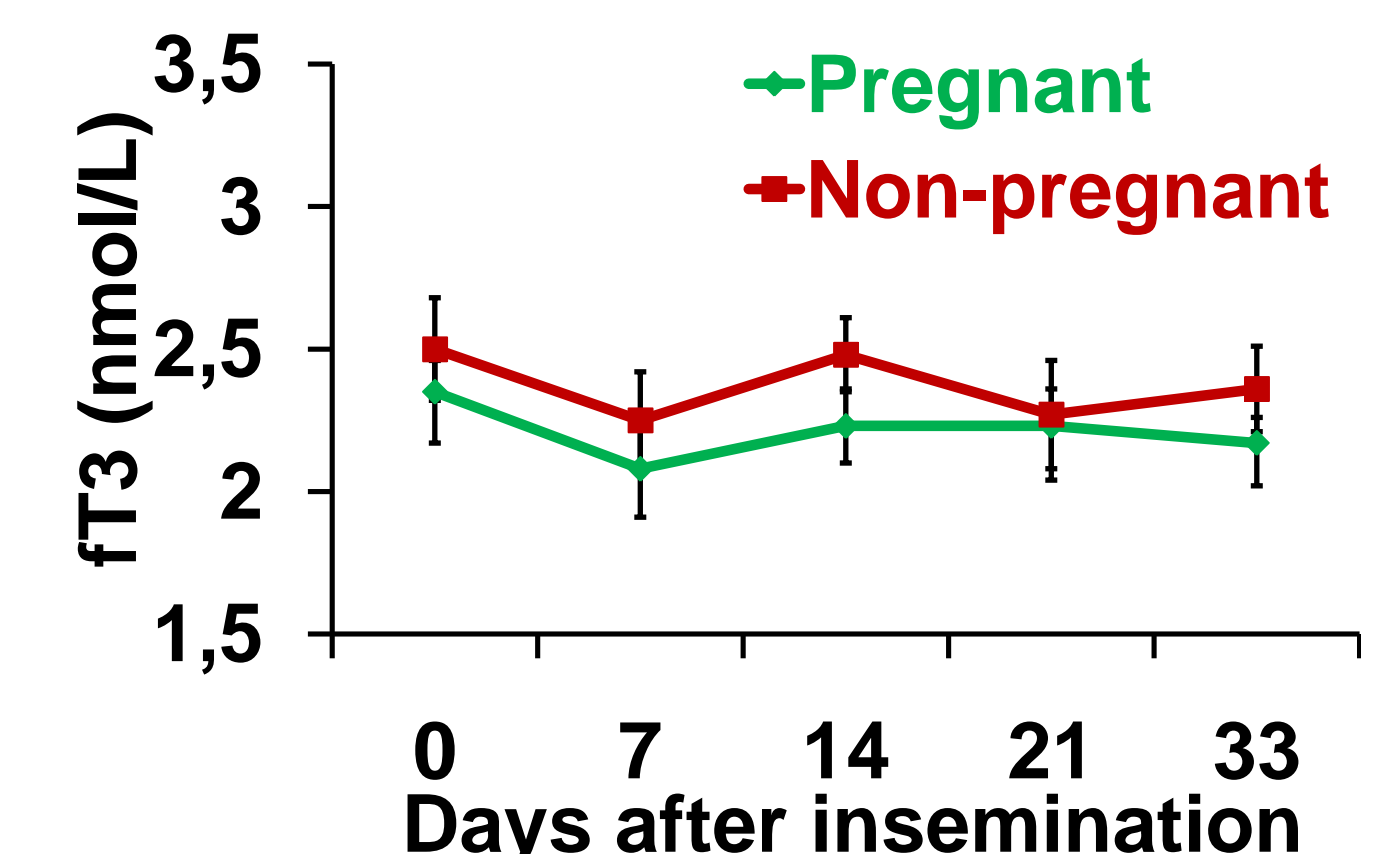


Fig. 4. Serum levels of free T3 during the first month after AI of cows



Means with different letters differ significantly. \*\* $P < 0,01$  between PR and NPR cows.