To my Mother soul ............... 

My Father .....................

My Wife and Sons ...........

My Aunt Alia ............... 

Gotpy
Firstly thanks to God for giving me strength and patience to fulfill this study.

I would like to express my deep thanks to My Supervisor Dr. Mohammed Altigani Salih for guidance and useful suggestions.

Aim also thank full for the senior staff of Arab Poultry Production and Processing Company for unlimited help.

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Abstract

The present study was conducted to evaluate the improvement of fans and pad evaporative cooling of poultry houses and its effect on Broiler Breeder performance. The Broiler breeder houses used in the study is owned and operated by Arab Poultry Production and Processing Company. The objectives of the study are maintaining better environmental conditions in order to attain the maximum production and therefore increase the rate of economical returns for the company.

Eight closed poultry houses capacity 30,000 birds (3750 birds \house) were used to collected the date during the rearing and the production periods. The rearing period started with one day old chicks and continued for 24 weeks while the production period started at the end of rearing and continued for 40 production weeks. The ventilation and cooling system used in these houses is the exhaust fans and pad evaporative cooling system in which wetted pad banks (12 m length X 0.91 m high) are located along the middle of both side walls of the house while six teen exhaust fans power rate (10,000 m³/h) placed in beginning and end of the house. Due to negative pressure created by the exhaust fans, ambient air is forced through the wetted pads, where it is evaporative cooled and flows the longitudinally through the house towards
the exhaust fans. The cooling performance was observed to be inefficient, the inside temperature was high and adversely effecting in broiler breeder performance. Accordingly, improvement of fans and pad evaporative cooling was done in four houses called Rehabilitated houses, in which the wetted pad bank area was increased (12 m length X 1.90 high) and the banks were located in beginning of both side walls of the house while six exhaust fans power rate (34000 m$^3$/h) are distributed in the end of house. Rehabilitation of poultry houses resulted in significant (P < .01) drop in the inside temperature throughout the rearing and the production period. The drop in temperature was about 4°C during the winter season and 3°C during summer season. Improvement in inside temperature in rehabilitated houses resulted in significant (P<0.01) increase in feed intake for female and male broiler parent stock during the rearing period and consequently this resulted in significant (P<0.01) improvement in body weight for both sexes .The results also lead to significant (P<0.01) drop in mortality and less percentage of culled birds .

In the production period the improvement in inside temperature in rehabilitated houses resulted in significant (P<0.01) increase in feed intake, egg production, egg weight and fertility. And these results lead to significant (P<0.01) drop in the second class egg.
This improvement in ventilation increased the economical rerun by 8.2% per cycle for the rehabilitation houses, and decreased in total costs 4.38% to the non rehabilitation houses.
Arabic Abstract

اجريت هذه الدراسة لتقسيم التحسين في مراوح التهوية وخلايا التبريد واثرها في اداء امكانيات التسمين. الحظائر المستخدمة في التجربة مملوكة وتدار بواسطة شركة انتاج وتصنيع الدجاج العربي. والهدف من التجربة هو تحسين المقومات البيئية المثل للطيور لبلوغ اقصى معدلات انتاج اكبر عائد اقتصادي.

ثمانية حظائر مغلقة بسعة 3,000 طائر (375 طائر للحظيرة).

استخدمت في الدراسة لجمع النتائج خلال فترة الرعاية والانتاج. فترة الرعاية تبدا من عمر يوم واحد وتنتهي عند عمر 24 أسبوع ثم تبدا بعدها فترة الانتاج والتي تستمد الى 40 أسبوع انتاجي. نظام التهوية والتبريد المستخدم في هذه الحظائر هو نظام مراوح الشفط والوسائد المسامية المبللة والتي بالابعاد (12 متر طول وا.91 متر عرض ) موضوعة في وسط كل جانب من الحظيرة بالإضافة إلى عدد 16 مروحة شفط تعمل بمعدل 1,000 متر³/ساعة/s للمروية موزعة على جانبي بداية ونهاية الحظيرة.

خلال الضغط السالب الذي تحدثه مراوح الشفط يدخل الهواء الجاف من خلال الوسائد المسامية المبللة ليتم تبريده ثم ينساب في مسار طولي نحو مراوح الشفط الموزعة على جانبي بداية ونهاية الحظيرة. لوحظ ضعف التهوية وعدم فاعلية التبريد داخل الحظيرة.
والتمثيلة في ارتفاع درجات الحرارة وعدم تجانس التهوية الامر الذي اثر سلباً على اداء اممات التسمين.

وفقاً لذلك تم تحسين مراوح التهوية والوسائد المسامية المبللة (خلايا التبريد) في أربعة حظائر اطلق عليها الحظائر المؤهلة وذلك بزيادة مساحة الخلايا المسامية لتصبح بالابعاد (12 متراً طول و1.91 متراً عرض) مع تغيير مكان الخلايا بوضعها على جانبي العنبر وفي البداية بدلاً من الوسط. كما تم استبدال مراوح الشفط بمراوح تعمل بمعدل 0.44 متر³/ساعة للمروحة تم تركيبها في نهاية العنبر اظهرت النتائج التي تم جمعها خلال مرحلتي الرعاية والانتاج فروق (P<0.01) معنوية في درجات الحرارة الداخلية للحظائر حيث اظهرت الحظائر المؤهلة انخفاض في درجات الحرارة الداخلية هذا الانخفاض كان بمعدل 4 درجات منوية خلال موسم الشتاء ومواد 3 درجات منوية خلال موسم الصيف وذلك عند مقارنة الحظائر المؤهلة بالحظائر الغير مؤهلة. هذا التحسين الذي حدث في درجات الحرارة الداخلية والتهوية للحظائر المؤهلة احدث فروقات معنوية (P<0.01) في زيادة معدل استهلاك العلف خلال فترة التربة والذي بدوره ادى لزيادة كبيرة في وزن الجسم مع انخفاض معدلات النفوذ والاستباع. كما ادى هذا التحسين الى احداث فروقات معنوية (P<0.01) خلال مرحلة الانتاج في ارتفاع معدلات استهلاك الاعلاف ونسب انتاج البيض ووزن البيض مع ارتفاع نسب الاخصاب وانخفاض في معدلات البيض المبعد والنفوذ. 

P<0.01
هذه التأثيرات الإيجابية أدت إلى زيادة المردود الاقتصادي بالنسبة للحظائر المؤهلة بمقدار 2.2% عن الحظائر الغير مؤهلة كما أدت إلى انخفاض التكلفة الكلية للإنتاج بمقدار 83.4% بالحظائر المؤهلة.
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