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**MINISTRY OF AGRICULTURE**  
**AGRICULTURAL RESEARCH**  
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**INSTITUTE OF ANIMAL SCIENCE**

**Defluorinated Rock Phosphate  
 as a Source of Sodium  
 for Broilers**

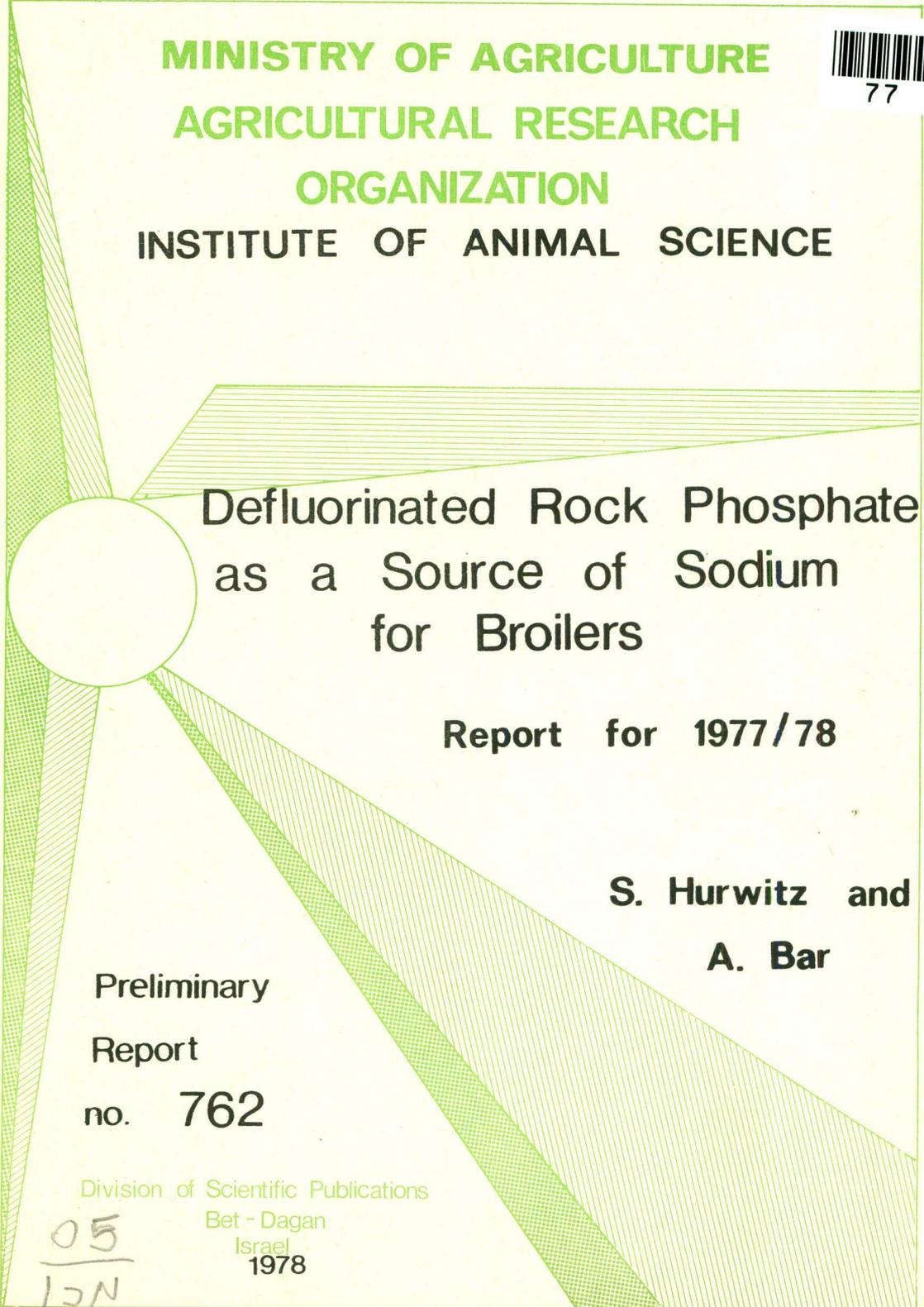
**Report for 1977/78**

**S. Hurwitz and  
 A. Bar**

**Preliminary  
 Report  
 no. 762**

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DEFLUORINATED ROCK PHOSPHATE AS A SOURCE OF SODIUM  
FOR BROILERS

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INTRODUCTION

In a previous study (Hurwitz et al., 1974) we demonstrated the efficacy of a Na/Cl ratio in the diet, wider than that in NaCl, in improving feed efficiency. The technique involved replacing part of the dietary NaCl with either sodium bicarbonate or sodium phosphate. Since DFP is rich in sodium it was deemed of interest to check it as a possible chloride-less supplement.

METHODS\*

Calcium was determined by automatic titration with EGTA, phosphate by the colorimetric determination using molybdate and Elon according to Gomori (1942), and sodium by flame photometry. The composition of the phosphate supplements is given in Table 1.

Table 1. Composition of phosphate supplements used in the study (%)

Source	DCP	DFP
Phosphorus	16.9	17.6
Calcium	22.9	33.0
Sodium	-	5.4

\*Dicalcium phosphate (DCP) and defluorinated rock phosphate (DFP) were obtained from Fertilizers & Chemicals Ltd., Israel, and Negev Phosphates Ltd., Israel, respectively.

One hundred and forty-four ~~5½-week-old~~ White Rock males were distributed among 12 groups according to their body weight to insure similar averages and distribution of the weight among the groups. The experimental diets, detailed in Table 2, were each given to four replicate groups for a period of 2 weeks, during which body weight and feed intake were monitored. The diets were based on NRC requirements.

Table 2. Composition of the experimental diets

Lot No.	1	2	3
	%		
Constant ingredients*	86.35	86.35	86.35
DCP	2.00	-	2.00
DFP	-	1.90	-
Sodium chloride	0.30	0.15	0.15
Sodium bicarbonate		-	0.35
Calcium  carbonate (limestone)	1.00	0.60	1.00
Sorghum grain	10.35	11.00	10.15

\*Soybean oil meal, 31.50; soybean oil, refined, 4.50; yellow corn, 50.00; vitamin and trace mineral mixtures, commercial, 0.35.

#### RESULTS AND CONCLUSIONS

The results are summarised in Table 3.

Table 3. Performance of broiler chicks fed diets containing dicalcium phosphate or DFP, with adjustment of the sodium supplementation

Lot no.	1	2	3	S.E.
Supplement	DCP	DFP	DCP+NaHCO	
Body weight, g. initial	1261	1258	1250	7.5
final	1952	1964	1953	8.5
gain	691	706	703	7.8
Feed intake, g	1805	1805	1809	10.1
feed conversion	2.612	2.559	2.572	0.026

There were no significant differences among the means with all parameters. However, the results reveal a tendency toward improved weight gain and especially improved feed efficiency with sodium bicarbonate replacement of sodium chloride on the one hand, and through the use of DFP on the other hand.

#### REFERENCES

Gomori, G. 1974 J. Lab. clin. Med. 27: 055-960.

Hurwitz, S., Cohen, I., Bar, A. and Minkov, U. 1974 Poultry Sci. 53: 326-331.

דיפלואארינטד רוק פוספט (די.אף.פי.) כמקור נתרן לפטימים

מאת

ש" הורויץ, א" בר

### ת ק צ י ר

144 אפרוחים זכרים בני חמישה וחצי שבועות הואבסו במשך  
שבועיים במנות המכילות די.סי.פי., די.אף.פי. או די.סי.פי.  
בתוספת נתרן ביקארבונאט להשלמת כמות הנתרן במנה.

לא נמצאו הבדלים מובהקים בכל הפאראמטרים שנבדקו: משקל  
סופי, תוספת משקל, צריכת מזון ונצילות המזון. לעומת זאת, נמצאה  
נטיה קלה לשיפור נצילות המזון בעופות שקיבלו די.אף.פי. או  
די.סי.פי. + נתרן ביקארבונאט.

משרד החקלאות  
מינהל המחקר החקלאי

המכון לבטלי-חיים

מחלקת המחקר  
מס' 762  
1978

דיפלואוריןטד הוק פוספט  
(ד! אף. פי.) כמקור נתרן  
לכטימים

מאת

ש' הורויק, א' בר

כירסום

מקדים

מס' 762

המחלקה לפירסומים מדעיים  
מרכז וולקני בית-דגן

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