TABLE I

Soil type	Average azotobacter count (10^2)	Amount of nitrogen in mgm		Gain in nitrogen in mgm per gram soil
		Treated	Control	
1. Silty loam	22·58	8·02	1·30	6·72
2. Sandy loam	15·83	6·61	1·19	4·42
3. Salty clay loam	14·80	4·95	1·52	3·43
4. Clay loam	7·20	4·05	0·97	3·07
5. Clay	5·66	4·02	1·24	2·78

the gain in amount of nitrogen varied directly with azotobacter population, the correlation coefficient between counts of azotobacter in different soil types and amount of gain in nitrogen being positive and significant at less than 5% level ($r = 0·899$).

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Pythium Stalkrot—A Deadly Disease of Maize in India

Pythium stalkrot of maize incited by *Pythium aphanidermatum* (Edson) Fitzp. (= *P. butleri* Subr.) was first reported in India by Srivastava and Rao (1964) and after release of hybrids and composites, the disease appeared in epidemic proportions in certain parts of India.

The disease attacks the crop during July–August in *Kharif* season and its occurrence has been recorded from various locations in Delhi, Punjab, Haryana, Himachal Pradesh, Bihar, Uttar Pradesh and Andhra Pradesh. In 1969, the disease assumed epidemic proportions at Sundergarh (Himachal Pradesh) and the incidence was recorded upto 40% which severely damaged the crop.

The experiments conducted during 1967–71 at IARI, New Delhi, have revealed that the Pythium stalkrot of maize occurs when the vulnerable pretasseling stage of crop, coupled with high plant population per unit area in a poorly-drained field coincides, with high atmospheric temperature (30–35° C) and high relative humidity (90–100%) as prevalent in the month of August.

The following control measures are suggested to combat this menace :

(i) Comparatively tolerant hybrids and composites like Him-123, Hi-starch and Vijay should be selected for planting.
(ii) Regulation of planting time either before first week of June or after second week of July.
(iii) Plant population should not to exceed 50,000 plants per hactare,
(iv) Proper field drainage to be maintained to avoid waterlogging.
(v) Previous crop residue or debris to be removed to avoid the chances of the buildup of the pathogen thereupon,
(vi) Balanced fertilizer application at the rate of 120 kg nitrogen, 50 kg phosphorus and 50 kg potassium.
(vii) Soil drenching with 0·2% solution of Captan at the rate of 1000 litres per acre at preflowering stage of crop,
(viii) Excessive organic manuring not be resorted to.

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Pathology of Chlamydial Abortions in Ovine and Caprine

A storm of late abortions in sheep and goats (77 sheep and 3 goats) alongwith premature birth of weak off-springs were proven to be due to chlamydial agent for the first time in India.

The majority of cases had necrosed placental cotyledon and acute exudative placentitis. Generalised congestion with enlargement of spleen and liver was present in some foetuses. Liver was most commonly involved having perivascular reticuloendothelial cell proliferations and degenerative foci. Presence of elementary bodies in the smears of placentae, foetal organs, thoracic and abdominal fluid was demonstrated by Macchiavello and Gimenez stains. These observations are in

conformity with the previous workers[1,2]. Gliosis in brain of aborted foetuses was an additional feature necessitating further studies.

In parallel with histo-anatomical studies isolation of the chlamydial agents in the yolk sac of embryonating chicken eggs confirmed the disease as chlamydiosis.

Complement fixing antibodies in 21 days post-abortion sheep sera were demonstrated with standard chlamydial group antigen and antigen prepared presently.

The immunofluorescence studies with the group specific conjugated globulin confirmed these organisms in the sections of cotyledon and yolk sac membrane as Chlamydia.

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Occurrence of Spontaneous Haploid in *Ricinus communis* L. var. Aruna

Haploid has been reported in caster—*Ricinus communis* L.— by Poole and Hadley[4] from selfed seed of P.I. 183468. There are reports of haploids in other crop plants reviewed by Kimbar and Riley[2] and Magoon and Khanna[3]. Since 1954 there has been no report about haploid in castor and the work developed from such a plant in developing homozygous diploid line. Present paper deals with the haploid obtained in *Ricinus communis* variety Aruna.

In Aruna at Regional Research Station, Raichur, India, an interesting plant was observed. This plant was dwarf with a few rough and narrow leaves and produced spike under field conditions which did not set any seed. The plant was dug out and potted in the bigger pot. Transplanting had enormous effect on the plant by way of producing plenty of foliage and production of spikes in addition to the primary ones. Cytology of the plant revealed in root tip preparations following oxyquinoline technique that it possessed ten somatic chromosomes as compared to the twenty that are seen in the normal plants. Flower buds were used for meiotic study which also showed ten univalents. Spikes produced from the haploid plant possessed shrivelled seeds. In order to develop homozygous diploid from the haploid, the secondary branches have been treated with various concentrations of aqueous colchicine (0·1 to 0·5%) to develop inbred lines for use in commercial hybrid seed production. However the attempt was not successful in obtaining homozygous diploids. Studies in castor show that the utilisation of heterosis seems to have limited scope in hybrids of the varieties HC 6, Gujarath Monospike, Cimmarron Inbred, Aruna, Rosy and TMV 1[1]. However the development of homozygous diploid lines as is envisaged might help in developing commercial hybrids. The said haploid is surviving showing perennial habit. Attempt of diploidizing has been continued.

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