

**LAWS OF TRINIDAD AND TOBAGO**

**FERTILISERS AND FEEDING STUFFS ACT**

**CHAPTER 63:55**

**Act**  
**1 of 1909**  
Amended by  
45 of 1979

**Current Authorised Pages**

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**Note on Adaptation**

Under paragraph 6 of the Second Schedule to the Law Revision Act (Ch. 3:03) the Commission amended certain references to public officers in this Chapter. The Minister's approval of the amendments was signified by LN 52/1980 and 120/1980, but no marginal reference is made to this Notice where any such amendment is made in the text.

**CHAPTER 63:55**

**FERTILISERS AND FEEDING STUFFS ACT**

ARRANGEMENT OF SECTIONS

**SECTION**

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CHAPTER 63:55

FERTILISERS AND FEEDING STUFFS ACT

1950 Ed.  
Ch. 23, No.15.  
1 of 1909.

**An Act respecting the sale of Agricultural Fertilisers and Feeding Stuffs.**

Commencement.

[20<sup>TH</sup> FEBRUARY 1909]

Short title.

**1.** This Act may be cited as the Fertilisers and Feeding Stuffs Act.

Interpretation.  
[45 of 1979].

**2.** In this Act—

“Analyst” means any officer designated as such by Notification issued by the Minister;

“cattle” means bulls, cows, oxen, heifers, calves, sheep, goats, swine, horses, mules, and asses;

“Chief Analyst” means any Analyst designated as such by Notification issued by the Minister;

“Official Sampler” means any officer designated as such by Notification issued by the Minister;

“soluble” and “insoluble” mean respectively soluble and insoluble in water, or, if so specified in the invoice, in a solution of citric acid or other solvent of the prescribed strength; and the percentage of soluble phosphates and percentage of insoluble phosphates mean respectively the percentage of tri-basic phosphate of lime which has been, and that which has not been, rendered soluble.

Application of Act.

**3.** This Act shall apply to wholesale as well as retail sales.

Licence to sell fertilisers and foods.

**4.** Every person who sells for use as a fertiliser of the soil or as food for cattle or poultry any article which has been subjected to any artificial process in Trinidad and Tobago or which has been imported from abroad, shall take out an annual licence, which shall expire on 31st December next after the granting thereof. The licence shall be granted only to persons resident in Trinidad and Tobago by the Commissioner of Police free of charge, and may be cancelled by any Magistrate on second conviction for an offence against this Act.

5. (1) Every person who sells for use as a fertiliser of the soil any article which has been subjected to any artificial process in Trinidad and Tobago, or which has been imported from abroad, shall give to the purchaser an invoice stating the name of the article and what are the respective percentages (if any) of nitrogen, soluble phosphates, insoluble phosphates, and potash contained in the article; and the invoice shall have effect as a warranty by the seller that the actual percentages do not differ from those stated in the invoice beyond the prescribed limits of error.

Warranties as to fertilisers and feeding stuffs.

(2) Every person who sells for use as a food for cattle or poultry any article which has been artificially prepared, shall give to the purchaser an invoice stating the name of the article, and whether it has been prepared from one substance or seed or from more than one substance or seed, and, in the case of any article artificially prepared otherwise than by being mixed, broken, ground, or chopped, what are the respective percentages (if any) of oil and albuminoids contained in the article; and the invoice shall have effect as a warranty by the seller as to the facts so stated, except that as respects percentages the invoice shall have effect as a warranty only that the actual percentages do not differ from those stated in the invoice beyond the prescribed limits of error.

(3) Where any article sold for use as food for cattle or poultry is sold under a name or description implying that it is prepared from any particular substance or from any two or more particular substances, or is the product of any particular seed or of any two or more particular seeds, and without indication that it is mixed or compounded with any other substance or seed, there shall be implied a warranty by the seller that it is pure, that is to say, is prepared from that substance or those substances only, or is a product of that seed or those seeds only.

(4) On the sale of any article for use as food for cattle or poultry, there shall be implied a warranty by the seller, that the article is suitable to be used as such.

(5) Any statement by the seller of the percentages of the chemical and other ingredients contained in any article sold for use as a fertiliser of the soil, or of the nutritive and other ingredients contained in any article sold for use as food for cattle or poultry, made in an invoice of the article, or in any circular or advertisement descriptive of the article, shall have effect as a warranty by the seller.

(6) Where an article sold for use as a fertiliser of the soil or as food for cattle or poultry consists of two or more ingredients which have been mixed at the request of the purchaser, it shall be a sufficient compliance with the provisions of this section with respect to percentages if the invoice contains a statement of percentages with respect to the several ingredients before mixture, and a statement that they have been mixed at the request of the purchaser

Appointments.  
[45 of 1979].

6. (1) There shall be appointed in the public service such number of Analysts and Official Samplers as may be necessary for the purposes of this Act.

(2) No person shall, while holding the office of Chief Analyst, Analyst, or Official Sampler under this Act, engage or be interested in any trade, manufacture, or business connected with the sale, or importation for sale, of articles used for fertilising the soil or as food for cattle or poultry.

Purchaser may  
have analysis  
made.

7. (1) Every purchaser of any article used for fertilising the soil or as food for cattle or poultry shall, on payment to the Analyst of the prescribed fee be entitled to have the article analysed and to receive from the Analyst with all convenient speed a certificate of the results of his analysis.

(2) An Official Sampler shall, at the request of the purchaser and on payment by him of the required fee, and may, without any such request, take a sample for analysis by the Analyst of any such article as aforesaid which has been sold or exposed or kept for sale, but, in the case of an article which has been sold, the sample shall be taken at or before the time of delivery or during the course of delivery to the purchaser, and in the presence of the seller or his agent, or, in the absence of the seller or his agent, in the presence of two witnesses.

(3) Where a sample has been taken with a view to the institution of any civil or criminal proceeding, the person taking the sample shall divide the sample into three parts, and shall cause each part to be marked, sealed, and fastened up, and shall deliver or send by post two parts to the Analyst and one part to the seller.

(4) An Analyst to whom a sample is submitted for analysis under this section—

- (a) if the sample has not been divided into parts and the parts marked, sealed, and fastened up as mentioned in subsection (3), shall send a copy of the certificate of his analysis to the person who submitted the sample for analysis; and
- (b) if the sample has been so divided into parts, shall analyse one of the parts of the sample delivered or sent to him and retain the other, and shall send a certificate of his analysis in the prescribed form and containing the prescribed particulars to the person who submitted the sample for analysis, and where that person is not the purchaser of the article also to the purchaser, and in every case to the seller and to such other persons (if any) as may be prescribed, and shall report to the Minister in the prescribed manner the result of any such analysis. If the Analyst does not know the name and address of the seller he shall send the certificate intended for the seller to the purchaser, to be by him forwarded to the seller.

(5) At the hearing of any civil or criminal proceeding with respect to any article a sample whereof has been analysed in pursuance of this section, the production of a certificate of the Analyst, or, if a sample has been submitted to the Chief Analyst, then of the Chief Analyst, shall be sufficient evidence of the facts therein stated unless the defendant or person charged requires that the Analyst or the person who made the analysis is called as a witness.

This subsection shall not apply—

- (a) where the sample has been taken otherwise than in the prescribed manner; or
- (b) where the sample has not been divided into parts and the parts marked, sealed, and fastened up as hereinbefore mentioned.

(6) If in any such legal proceeding (other than a proceeding which cannot be instituted until an analysis has been made and a certificate given by the Chief Analyst) either party to the proceeding objects to the certificate of the Analyst, the party objecting shall, on payment of such fee as may be prescribed, be entitled to have submitted to the Chief Analyst the part of the sample retained by the Analyst, and to have that part analysed by the Chief Analyst and to receive from him a certificate of the result of his analysis.

(7) Where a sample is, under this section, sent for analysis to the Chief Analyst or to an Analyst, there shall be sent, with the sample, the invoice (if any) relating to the article from which the sample was taken, or a copy of the invoice or of any prescribed part thereof.

Regulations.

**8.** (1) The Minister may make Regulations—

- (a) with respect to any matter which under this Act is to be prescribed;
- (b) as to the qualifications to be possessed by the Chief Analyst, the Analyst, and the Official Samplers;
- (c) as to the manner in which analyses are to be made;
- (d) as to the manner in which samples are to be taken and dealt with; and
- (e) generally, for the purpose of carrying this Act into execution.

Nothing in this section, or in any Regulations made thereunder, shall affect the right of the purchaser of an article used for fertilising the soil, or as food for cattle or poultry, to have analysed by the Analyst a sample of any article taken by him or at his request otherwise than in accordance with the Regulations.

(2) All Regulations made under this section shall be laid before Parliament as soon as may be after they are made.

**9.** (1) Any person who sells any article for use as a fertiliser of the soil or as food for cattle or poultry and who commits any of the following offences, namely:

Penalties for breach of duty by seller.

- (a) fails without reasonable excuse to give, on or before or within twenty-four hours after, the delivery of the article, the invoice required by the purchaser, Analyst, or Official Sampler for the purpose of this Act;
- (b) causes or permits any invoice or description of the article sold by him to be false in any material particular to the prejudice of the purchaser;
- (c) sells for use as food for cattle or poultry any article which contains any ingredient deleterious to cattle or poultry or to which has been added any ingredient worthless for feeding purposes and not disclosed at the time of the sale,

is without prejudice to any civil liability, liable on summary conviction for a first offence to a fine of one thousand dollars and for any subsequent offence to a fine of two thousand dollars.

(2) In any proceeding under this section, it shall be no defence to allege that the purchaser, having bought only for analysis, was not prejudiced by the sale.

(3) A person alleged to have committed an offence under this section in respect of an article sold by him shall be entitled to the same rights and remedies, civil or criminal, against the person from whom he bought the article as are available to the person who bought the article from him; and any damages recovered by him may, if the circumstances justify it, include the amount of any forfeiture or penalty and costs paid by him on conviction under this section, and the costs of and incidental to his defence on the conviction.

**10.** Any person who fraudulently—

Penalty for tampering.

- (a) tampers with any article so as to procure that any sample of it taken in pursuance of this Act does not correctly represent the article;

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- (b) tampers with any sample taken under this Act; or
- (c) tampers with any invoice produced in pursuance of this Act,

is liable on summary conviction to a fine of one thousand dollars or to imprisonment for six months.

Penalty for obstructing Official Sampler.

**11.** If the owner, the purchaser, or the person entrusted for the time being with the charge or custody of any article sold or intended to be sold for use as a fertiliser of the soil or as food for cattle or poultry—

- (a) refuses to allow an Official Sampler to take a sample of the article for the purpose of analysis; or
- (b) refuses to give the Official Sampler the invoice of the article or a copy thereof, or of any prescribed part thereof,

he is liable on summary conviction to a fine of four hundred dollars.

Penalty for selling without licence.

**12.** Any person who sells for use as a fertiliser of the soil or food for cattle or poultry any article which has been subjected to any artificial process in Trinidad and Tobago, or which has been imported from abroad, without having in force a licence under section 4, is liable on summary conviction to a fine of one thousand dollars.

Prosecutions.

**13.** A prosecution for an offence against this Act may be instituted either by the person aggrieved, or by any member of the Police Service, or by any body or association authorised in that behalf by the Minister, but in the case of an offence under section 9 a prosecution shall not be instituted by the persons aforesaid or by any such body or association except on a certificate of the Director of Public Prosecutions that there is reasonable ground for the prosecution.

Jurisdiction of Justices.

**14.** All offences under this Act punishable on summary conviction may be prosecuted before a Magistrate or Justice.

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**SUBSIDIARY LEGISLATION**

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**FERTILISERS AND FEEDING STUFFS REGULATIONS**

ARRANGEMENT OF REGULATIONS

**REGULATION**

1. Citation.
2. Interpretation.
3. Certificate of Analyst.
4. Analyst's report.
5. Citric acid solvent.
6. Appointment of agent.
7. Invoice, etc., to be sent to Analyst.
8. Prescribed part of invoice.
9. Sampling.
10. Methods of analysis of fertilisers.
11. Methods of analysis of feeding stuff.
12. Use of prescribed weights.
13. Limits of error.

**SCHEDULE.**

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[Subsidiary]

G. 6. 5.1909.

**FERTILISERS AND FEEDING STUFFS REGULATIONS**

*made under section 8*

Citation.

**1.** These Regulations may be cited as the Fertilisers and Feeding Stuffs Regulations.

Interpretation.

**2.** In these Regulations—

“feeding stuff” means any article used as food for cattle (as defined by the Act, i.e., bulls, cows, oxen, heifers, calves, sheep, goats, swine, horses, mules and asses) or poultry;

“fertiliser” means any article used for fertilising the soil;

“purchaser” and “seller” include their respective agents.

Certificate of Analyst.

**3.** The Certificate of an Analyst, in the case of a sample which has been divided into parts as provided in the Act, shall be in such one of the forms set out as Forms A and B in the Schedule as may be applicable to the case, with such variations as the circumstances require.

Forms A and B. Schedule.

Analyst’s report.

**4.** Every Analyst shall, as soon as may be after 31st March, 30th June, 30th September, and 31st December in each year, report to the Minister the results of all analyses made by him under section 7(4)(b) of the Act during the three calendar months ending on such dates respectively; and he shall also forthwith report to the Minister the result of any such analysis in any case in which any provision of the Act appears to him to have been infringed.

Citric acid solvent.

**5.** When in an invoice relating to basic slag or basic superphosphate it is specified that a certain percentage of the phosphate contained in the basic slag or basic superphosphate is soluble in citric acid, this shall be taken to mean that it is capable of being dissolved to the extent of such percentage when five grams of the fertiliser and five hundred cubic centimetres of water, containing ten grams of citric acid, are continuously agitated in a flask or bottle of about one litre capacity for the period of half an hour at the ordinary temperature.

6. The purchaser of a fertiliser or feeding stuff may, for the purposes of the Act, appoint an agent, in the form set out as Form C in the Schedule, or in a form to the like effect.

Appointment of agent.  
Form C.  
Schedule.

7. Where a sample is, or parts of a sample are, under section 7 of the Act sent for analysis to the Chief Analyst or to an Analyst, there shall be sent with the sample or parts the invoice (if any) relating to the article from which the sample was taken, or a copy of the invoice or of such part thereof as is hereinafter prescribed, and also any circular or advertisement, or a copy thereof, of the seller descriptive of the article which the purchaser may wish the Analyst to consider in making his analysis and giving his certificate.

Invoice, etc., to be sent to Analyst.

8. Where a copy of an invoice is sent to the Chief Analyst or to an Analyst, in pursuance of the Act, there may be omitted from the copy the name and address of, and any other matter which would identify or disclose, the seller of the article to which the invoice relates. The prescribed part of the invoice shall be the whole thereof except such name, address and other matter as aforesaid.

Prescribed part of invoice.

9. Where, for the purposes of the Act, a sample is required to be taken in the prescribed manner, or in accordance with Regulations made under the Act, the following provisions shall apply:

Sampling.

(a) The sample shall be taken in the following manner:

*In the case of a fertiliser—*

(i) When the fertiliser is delivered in bags or other packages, a number of bags or packages shall be selected as follows:

Not less than two bags or packages where the quantity of the whole consignment does not exceed one ton.

Not less than three bags or packages where the quantity of the whole consignment exceeds one ton and does not exceed two tons.

Not less than four bags or packages where the quantity of the whole consignment exceeds two tons and does not exceed three tons,

and, where the quantity exceeds three tons, one additional bag or package for every additional ton or part of a ton; provided that in no case need more than ten bags or packages be selected. The selection shall be made from different parts of the whole consignment.

- (ii) The selected bags or packages shall be opened separately and their contents thoroughly mixed together with a wooden spoon or paper knife. From each bag or package, a portion not less than two pounds in weight shall be set aside. The portions so set aside shall then be thoroughly mixed together and any lumps broken up by the hand, spoon or knife. From this mixture a sample from about two pounds to four pounds in weight, shall be taken.
- (iii) When the fertiliser is delivered in bulk, a like number of portions, according to the quantity of the whole consignment, shall be taken from different parts of the whole consignment and thoroughly mixed together and a sample from about two pounds to four pounds in weight, shall be taken from the mixture.
- (iv) When the fertiliser consists of bulky material, uneven in character and likely to get matted together, such as shoddy, wool refuse, hair, sheep manure, etc., portions are to be taken from the selected bags or packages, or from different parts of the

fertiliser if in bulk, the matted portions torn up, and all the portions thoroughly mixed together. The sample shall be taken from the mixture and shall be not less than three pounds in weight.

- (v) As an alternative method, where neither the seller nor the buyer signifies objection thereto, the sample of a fertiliser delivered in bags or other packages may be taken by a sampling pale or spear or pipe or tube, which shall not be less than twenty-four inches in length, and two inches in diameter. The sampling instrument shall be pressed into the mouth of the bag or package so as to pass through the entire depth of the contents or to the extreme length of the sampling instrument. The several quantities thus taken from the selected bags or packages, which shall be at least double the number of bags or packages required to be selected under paragraph (i), shall be thoroughly mixed together and a sample, from about two pounds to four pounds in weight, shall be taken from the mixture.

*In the case of a feeding stuff—*

- (vi) When the feeding stuff is in the state of grain or meal, it shall be sampled in the same manner as prescribed for fertilisers. When the feeding stuff is in the state of cake, a number of cakes shall be selected, from different parts of the whole consignment, as follows:

Not less than five cakes where the quantity of the consignment does not exceed two tons.

Not less than ten cakes where the quantity exceeds two tons and does not exceed five tons.

Not less than fifteen cakes where the quantity exceeds five tons and does not exceed fifty tons.

Not less than twenty-five cakes where the quantity exceeds fifty tons.

- (vii) The selected cakes shall either be passed through a cake-breaker or be broken into small pieces such as could be passed through a one and a half inch sieve. The broken cakes or the pieces shall be thoroughly mixed, and from the mixture a sample, not less than six pounds in weight, shall be taken.
- (viii) As an alternative method, three strips shall be taken across the middle of each selected cake; and each of the three parts, into which (under section 7(3) of the Act) a sample is to be divided, shall contain one strip of each selected cake.
- (ix) Where, on delivery of the consignment, any appreciable portion of the feeding stuff is found to be mouldy, sour, or otherwise unsuitable for feeding purposes, separate samples are to be taken of the unsuitable portion and of the residue of the feeding stuff respectively; and, in the case of unsuitable cakes, the sample may consist of several large pieces fairly representative thereof. An estimate shall be made by the person taking the sample as to the proportion of the feeding stuff unsuitable for feeding purposes and shall be communicated in writing by him to the Analyst.

- (x) When the feeding stuff is in a fluid or semi-fluid condition, three packages shall be selected, and, after the contents have been well stirred or shaken, a portion shall immediately be taken from each. The several portions shall then be thoroughly mixed together in a clean vessel, and from the mixture a sample, from about two pounds to four pounds in weight, shall be taken.

*In the case of both fertilisers and feeding stuffs—*

- (xi) Where the quantity of the whole consignment does not exceed two hundredweights, the sample may consist of such a portion of the consignment as is fairly representative of the whole, and the sample shall be of such a quantity that each of the parts, into which (under section 7(3) of the Act) it is to be divided, will be sufficient to enable a proper analysis to be made thereof.
- (b) General directions as to sampling—
- (xii) In every case the sampling shall be done as quickly as is possible consistently with due care, and the material shall not be allowed to be exposed any longer than is absolutely necessary.
- (xiii) Each of the parts into which (under section 7(3) of the Act) the sample is to be divided, shall be packed in a dry, clean bottle or jar, or (except in the case of a fertiliser) in a dry clean tin, or in some other suitable manner, so that the original composition of the fertiliser or feeding stuff may be preserved.

- (xiv) Each of the said parts of the sample shall be so packed and secured that it cannot be tampered with, and shall be sealed and initialled by the person taking the sample. It may also be sealed by the purchaser and the seller, if present, and so desiring. If the seller does not attend, the witness shall initial it. It shall be marked with the name of the article, the date and the place of the sampling, and with some distinguishing number, in such a manner that the particulars so marked can be seen without breaking the seal or seals.
- (xv) Where a sample is taken in the presence of, and sealed by, the seller as well as the purchaser, it shall be deemed, as between the purchaser and the seller, to have been taken in accordance with these Regulations.

Methods of analysis of fertilisers.

**10.** The methods of analysis of a fertiliser for the purposes of the Act shall be as follows:

**(i) Preparation of the Sample for Analysis**

- (a) In the case of powdered fertilisers in a dry, or moderately dry condition, the sample shall be passed through a sieve with perforations about one millimetre in diameter.  
Adventitious materials which cannot be conveniently crushed, *e.g.*, fragments of metal in basic slag, shall be removed and allowed for.
- (b) Other substances which are dry enough to powder but which are not in a fine condition shall be pulverised until the sample passes through a sieve with perforations about one millimetre in diameter.

- (c) Wool, hair, hoof, shoddy and similar substances, shall be pulled apart and cut until in a fine condition; or, if dry, they may be passed through a shredding machine.
- (d) Moist fertilisers which do not admit of being passed through a sieve shall be thoroughly mixed by the most suitable means.
- (e) In the case of horn, shoddy, and other substances which gain or lose water during the process of pulverising, the proportion of water shall be estimated in the coarse and in the powdered condition respectively, and the results of the analysis of the powdered sample shall be calculated to the water content of the original coarse substance.
- (f) Crystalline or saline materials, such as sulphate of ammonia, nitrate of soda, or potash salts, may be prepared by being well mixed and rapidly ground in a stoneware mortar, the portion finally reserved for analysis being especially finely ground.
- (g) When the sample has been passed through the sieve and thoroughly mixed, or, if not passed through the sieve, has been thoroughly mixed, a part of it not being less than one hundred grams shall be placed in a stoppered bottle, and from this the portions for analysis shall be weighed.

**(ii) Determination of Moisture (Loss on Drying)**

A weighed quantity of the sample shall be dried at 100°C.

**(iii) Determination of Nitrogen**

The presence or absence of nitrates must first be ascertained.

**(A) Nitrogen in absence of Nitrates**

- (a) A weighed portion of the sample shall be transferred to a Kjeldahl digestion flask; ten grams of potassium sulphate and twenty-five cubic

centimetres of concentrated sulphuric acid shall be added, and the flask shall be heated until a clear liquid, colourless, or of light straw colour is obtained. The operation may be accelerated by the addition of a small crystal of copper sulphate or a globule of mercury to the liquid in the digestion flask.

- (b) The quantity of ammonia shall be determined by distillation into standard acid after liberation with alkali, and, where mercury has been used, with the addition also of sodium or potassium sulphide solution.

*(B) Nitrogen when Nitrates are present*

- (a) A weighed portion of the sample shall be transferred to a Kjeldahl digestion flask; thirty cubic centimetres of concentrated sulphuric acid, containing one gram of salicylic acid, shall be added, and the flask shall be shaken so as to mix its contents without delay. The shaking shall be continued at intervals during ten minutes, the flask being kept cool, and then five grams of sodium thiosulphate and ten grams of potassium sulphate shall be added. The flask shall be heated until the contents are colourless or nearly so. Copper sulphate or mercury may be used as above described in paragraph (iii)(A)(a).
- (b) The quantity of ammonia shall be determined as above prescribed in paragraph (iii)(A)(b).

*(C) Nitrogen in form of Ammonium Salts*

A weighed portion of the sample shall be transferred to a distillation flask, and the quantity of ammonia shall be determined as above prescribed in paragraph (iii)(A)(b).

*(D) Nitrogen in Nitrates in the absence of Ammonium Salts and of Organic Nitrogen*

One gram of the sample shall be placed in a half-litre Erlenmeyer flask with fifty cubic centimetres of water. Ten grams of reduced iron and twenty cubic centimetres of sulphuric acid of 1.35 specific gravity shall be added. The flask shall be closed with a rubber stopper provided with a thistle tube, the head of which shall be half filled with glass beads. The liquid shall be boiled for five minutes, and the flask shall then be removed from the flame, any liquid that may have accumulated among the beads being rinsed back with water into the flask. The solution shall be boiled for three minutes more, and the beads again washed with a little water. The quantity of ammonia shall then be determined as above prescribed in paragraph (iii)(A)(b).

In cases in which the proportion of nitrates is small, a larger quantity of the sample shall be taken.

*(E) Control Experiment in Determination of Nitrogen*

The materials used in any of the methods described under this paragraph (iii) shall be examined as to their freedom from nitrogen by means of a control experiment carried out under similar conditions with the same quantities of the reagents which have been employed in the actual analysis, in the case of (A) one gram of pure sugar being used in place of the weighed portion of the sample. The quantity of standard acid used in the control experiment shall be deducted from the total quantity of acid found to have been neutralised in the distillation of the sample.

**(iv) Determination of Phosphates****(a) Phosphates Soluble in Water**

In the case of superphosphates, dissolved bones and similar substances, twenty grams of the sample shall be continuously agitated for thirty minutes in a litre flask with eight hundred cubic centimetres of water. The flask shall then be filled to the mark, and again shaken, and the contents shall be filtered. Fifty cubic centimetres of the filtrate shall be boiled with twenty cubic centimetres of concentrated nitric acid and the phosphoric acid shall be determined by the molybdate method prescribed below in paragraph (iv)(d).

In the case of fertilisers in which the proportion of phosphates soluble in water is small, a larger quantity of the filtrate prepared as above shall be taken.

**(b) Phosphates Soluble in the prescribed Citric Acid Solution**

Five grams of the sample shall be transferred to a stoppered bottle of about one litre capacity. Ten grams of pure crystallised citric acid shall be dissolved in water, the volume shall be made up to five hundred cubic centimetres, and the solution shall be added to the weighed portion of the sample in the bottle. To lessen the possibility of caking, the portion of the sample in the bottle may be moistened with five cubic centimetres of alcohol or methylated spirit before the citric acid solution is added; and in that case the volume of the citric acid solution shall be four hundred and ninety-five cubic centimetres instead of five hundred cubic centimetres. The bottle shall be at once fitted into a mechanical shaking apparatus and shall be continuously agitated during thirty minutes. The solution shall then be filtered

through a large “folded” filter, the whole of the liquid being poured on the paper at once. If not clear, the filtrate shall be again poured through the same paper.

Fifty cubic centimetres of the filtrate shall be taken and the phosphoric acid shall be determined by the molybdate method prescribed below in paragraph (iv)(d).

(c) *Total Phosphoric Acid*

A weighed portion of the sample in which portion, if necessary, the organic matter has been destroyed by ignition and the silica removed by appropriate means, shall be dissolved in nitric acid and boiled, the solution being made up to a definite bulk. The phosphoric acid shall be determined in an aliquot part of the solution by the molybdate method prescribed below in paragraph (iv)(d).

(d) *Molybdate Method*

To the solution, which should preferably contain from 0.1 to 0.2 gram of phosphoric oxide ( $P_2O_5$ ), obtained as above described in paragraphs (iv)(a), (b), or (c), one hundred to one hundred and fifty cubic centimetres of molybdic acid solution prepared as described below, or an excess of such solution, *i.e.*, more than is sufficient to precipitate all the phosphoric oxide present in the solution, shall be added, and the vessel containing the solution shall be placed in a water bath maintained at 70°C., for fifteen minutes, or until the solution has reached 70°C. It shall then be taken out of the bath and allowed to cool, and the solution shall be filtered, the phospho-molybdate precipitate being washed several times by decantation and finally on the paper with one per cent nitric acid solution. The filtrate and washings shall be mixed with more molybdic acid solution and allowed to stand for some time in a warm place in order to ascertain that the whole of the phosphoric oxide has been precipitated.

The phospho-molybdate precipitate shall be dissolved in cold two per cent ammonia solution, prepared as described below, and about one hundred cubic centimetres of the ammonia solution shall be used for the solution and washings. Fifteen to twenty cubic centimetres of magnesia mixture prepared as described below, or an excess of such mixture, *i.e.*, more than sufficient to precipitate all the phosphoric oxide present, shall then be added drop by drop, with constant stirring. After standing at least two hours with occasional stirring the precipitate shall be filtered off, washed with two per cent ammonia solution, dried, and finally weighed as magnesium pyrophosphate. The filtrate and washings shall be tested by the addition of more magnesia mixture.

(e) *Preparation of Molybdic acid solution*

The molybdic acid solution shall be prepared as follows:

One hundred and twenty-five grams of molybdic acid and one hundred cubic centimetres of water shall be placed in a litre flask, and the molybdic acid shall be dissolved by the addition, while the flask is shaken, of three hundred cubic centimetres of eight per cent ammonia solution, prepared as described below. Four hundred grams of ammonium nitrate shall be added, the solution shall be made up to the mark with water, and the whole added to one litre of nitric acid (Sp. Gr. 1.19). The solution shall be maintained at about 35°C. for twenty-four hours and then filtered.

(f) *Preparation of Magnesia mixture*

The magnesia mixture shall be prepared as follows:

One hundred and ten grams of crystallised magnesium chloride and one hundred and forty grams of ammonium chloride shall be dissolved in one thousand three hundred cubic centimetres of water. This solution shall be mixed with seven hundred cubic centimetres of eight per cent ammonia solution, and the whole shall be allowed to stand for not less than three days and shall be then filtered.

(g) *Preparation of the Ammonia solutions*

The eight per cent ammonia solution shall be prepared as follows:

One volume of ammonia solution of Sp. Gr. 0.880 shall be mixed with three volumes of water. This solution shall then be adjusted by the addition thereto of more strong ammonia solution or water as required until the specific gravity of the solution is 0.967.

The two per cent ammonia solution shall be prepared as follows:

One volume of eight per cent ammonia solution shall be mixed with three volumes of water.

(v) **Determination of Potash**

(a) *Muriate of Potash free from Sulphates*

A weighed portion of the sample (about five grams in the case of concentrated muriate of potash or ten grams in the case of low-grade muriate) shall be dissolved in water, the solution shall be filtered if necessary and made up to five hundred cubic centimetres. To fifty cubic centimetres of the solution, placed in a porcelain basin, a few drops of hydrochloric acid shall be added, and also ten cubic centimetres or twenty

cubic centimetres (according to whether the portion weighed was five grams or ten grams) of a solution of platinum chloride containing ten grams of platinum per one hundred cubic centimetres. After evaporation to a syrupy consistency on a water-bath, the contents of the basin shall be allowed to cool and shall then be treated with alcohol of specific gravity 0.864, being washed by decantation until the alcohol is colourless. The washings shall be passed through a weighed or counterpoised filter paper, on which the precipitate shall be finally collected, washed with alcohol as above, dried at 100°C. and weighed.

The precipitate is to be regarded as  $K_2PtCl_6$ .

(b) *Salts of Potash containing Sulphates*

A weighed portion of the sample (about five grams in the case of concentrated sulphate of potash or ten grams in the case of kainit or other low-grade salts) shall be boiled with twenty cubic centimetres of hydrochloric acid and three hundred cubic centimetres of water in a half-litre flask. Barium chloride solution shall be cautiously added, drop by drop, to the boiling solution until the sulphuric acid is completely precipitated. Any slight excess of barium shall be removed by the addition of the least possible excess of dilute sulphuric acid. The liquid (without filtration) shall be cooled and made up to five hundred cubic centimetres. A portion shall then be filtered, and fifty cubic centimetres of the filtrate shall be treated as in paragraph (v)(a), ten cubic centimetres or twenty cubic centimetres of platinum chloride solution, as the case may be, being used.

(c) *Potash in Guanos, and mixed Fertilisers*

Ten grams of the sample shall be gently ignited in order to char organic matter, if present, and shall then be heated for ten minutes with ten cubic centimetres of concentrated hydrochloric acid, and finally boiled with three hundred cubic centimetres of water. The liquid shall be filtered into a half-litre flask, raised to the boiling point, and a slight excess of powdered barium hydrate shall be added. The contents of the flask shall be cooled, made up to five hundred cubic centimetres and filtered. Of the filtrate two hundred and fifty cubic centimetres shall be treated with ammonia solution and excess of ammonium carbonate, and then, while boiling, with a little powdered ammonium oxalate, cooled, made up to five hundred cubic centimetres and filtered. Of the filtrate, one hundred cubic centimetres are to be evaporated in a platinum dish, and the residue heated, first in the air-bath and then very gently over a low flame, till all ammonium salts are expelled, the temperature being carefully kept below that of low redness. The residue shall be treated with hot water, filtered if necessary, and the potash shall be determined in the filtrate as in paragraph (v)(a).

**11.** The methods of analysis of a feeding stuff for the purposes of the Act shall be as follows:

Methods of  
analysis of  
feeding stuff.

(i) **Preparation of the Sample**

- (a) If the sample is already in a fine condition, e.g., a meal, it shall be thoroughly mixed, and a portion for the determination of the moisture shall be at once taken.

- (b) If the sample is not in a fine condition, e.g., a cake, it shall be carefully pulverised until the whole passes through a sieve with perforations from two to three millimetres in diameter. It shall then be thoroughly mixed, and a portion for the determination of the moisture shall be at once taken.
- (c) From the sample thus prepared, a portion not less than one hundred grams in weight shall be taken and further powdered if necessary and passed through a sieve with perforations of about one millimetre in diameter.
- (d) If the original sample is appreciably damp, or if for any reason the operations of pulverisation and mixing are likely to result in loss or gain of moisture, the moisture shall be determined in this portion, as well as in the sample prepared as in paragraph (i)(b), in order that the results of the analysis may be corrected to correspond with the sample in its original condition as regards moisture.
- (e) Materials which cannot be conveniently pulverised or passed through a sieve shall be thoroughly mixed and sampled by the most suitable means.
- (f) The prepared portion of the sample shall be placed in a stoppered bottle and from it the portions for analysis shall be weighed.

**(ii) Determination of Moisture—(Loss on Drying)**

A weighed quantity of the sample shall be dried at 100°C.

**(iii) Determination of Oil**

- (a) A weighed quantity of the sample shall be placed in a Soxhlet thimble, which shall then be placed in the Soxhlet extraction tube and extracted with

washed, re-distilled ether. At the end of three to four hours the thimble shall be removed from the Soxhlet tube, dried, and its contents finely ground in a small mortar previously rinsed with ether. The substance shall then be returned to the thimble, the mortar being washed out with ether, and the extraction continued for another hour.

After evaporation of the solvent the oil shall be dried at 100°C. and weighed. The oil shall be re-dissolved in ether and any undissolved matter shall be weighed and deducted.

- (b) In the case of samples containing saccharine matter, e.g., sugar meals, the weighted portion in the Soxhlet thimble shall be washed twice with water, and then dried, previous to the extraction.

**(iv) Determination of Albuminoids**

The percentage of albuminoids shall be ascertained by multiplying the percentage of nitrogen by 6.25.

The determination of nitrogen shall be as follows:

A weighed portion of the sample shall be transferred to a Kjeldahl digestion flask; ten grams of potassium sulphate and twenty-five cubic centimetres of concentrated sulphuric acid shall be added, and the flask heated until a clear liquid, colourless or of light straw colour is obtained. The operation may be accelerated by the addition of a small crystal of copper sulphate or a globule of mercury to the liquid in the digestion flask.

The quantity of ammonia shall be determined by distillation into standard acid after liberation with alkali, and, where mercury has been used, with the addition also of sodium or potassium sulphide solution.

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The materials used shall be examined as to their freedom from nitrogen by means of a control experiment carried out under similar conditions with the same quantities of the reagents which have been employed in the actual analysis, one gram of pure sugar being used in place of the weighed portion of the sample. The quantity of standard acid used in this control experiment shall be deducted from the total quantity of acid found to have been neutralised in the distillation of the sample.

Use of prescribed weights.

**12.** In calculating the results of analyses the atomic weights adopted by the International Committee on Atomic Weights shall be employed.

Limits of error.

**13.** For the purposes of section 5 of the Act, concerning the effect, as a warranty, of the statements made in the invoice of a fertiliser or of a feeding stuff (as above defined) respecting the percentages of nitrogen, phosphates, and potash contained in the fertiliser, or of oil and albuminoids contained in the feeding stuff, the limits of error shall be set forth in Forms D and E of the Schedule.

Forms D and E. Schedule.

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**SCHEDULE**

Regulation 3.

**FORM A**

**CERTIFICATE FOR FERTILISER**

I, the undersigned, Analyst, in pursuance of the provisions of the Fertilisers and Feeding Stuffs Act, hereby certify that I received on the ..... day of ....., 20..... from (a) ..... two parts of a sample of (b) ..... for analysis; which parts were duly sealed and fastened up and marked (c) ....., and were accompanied by the annexed (d) (copy of an) invoice, and also by the annexed (d) circular and advertisement, and that at the request of (e) ....., I have analysed one of the said parts and declare the result of my analysis to be as follows:

I am of opinion that the said part contained the following percentages:

(f) Nitrogen	...	...	...	...	per cent
(g) Phosphates	{	Soluble	...	...	"
		Insoluble	...	...	"
(h) Potash	...	...	...	...	"
(i)					

The analysis was made in accordance with the methods of analysis prescribed in the Regulations.

As witness my hand this ..... day of ....., 20.....

*[Name of Analyst]*  
Analyst at Port-of-Spain

- (a) Here insert the name of the person delivering the sample, and if so "by post".
- (b) Here insert the name of the article as stated on the invoice.
- (c) Here insert the distinguishing mark on the sample.
- (d) The invoice or copy invoice, and any circular or advertisement given to the Analyst will be initialled by the Analyst for purposes of identification and annexed to this Certificate.
- (e) Here insert name of the person requesting the analysis.
- (f) The Analyst may, in his discretion, add a statement of the amount of ammonia to which the amount of nitrogen stated in the certificate is equivalent.
- (g) The phosphates in both cases to be given in terms of tribasic phosphate of lime and in accordance with the definitions of "soluble" and "insoluble" contained in section 2 of the Act.
- (h) The potash to be given in terms of potassium oxide, K<sub>2</sub>O.
- (i) Here state—
  - (i) The percentages of chemical and other ingredients present, when any statement of such percentages is contained in the invoice, or in any accompanying circular or advertisement descriptive of the article.
  - (ii) In what respect, if any, the invoice or the description of the article contained in any such circular or advertisement, is false in any material particular to the prejudice of the purchaser.

Regulation 3.

FORM B

CERTIFICATE FOR FEEDING STUFF

I, the undersigned, Analyst, in pursuance of the provisions of the Fertilisers and Feeding Stuffs Act, hereby certify that I received on the ..... day of ..... 20....., from (a) ..... two parts of a sample of (b) ..... for analysis, which parts were duly sealed and fastened up and marked (c) ..... and were accompanied by the annexed (d) (copy of an) invoice, and also by the annexed (d) circular and advertisement, and that at the request of (e) ..... I have analysed one of the said parts and declare the result of my analysis to be as follows:

I am of opinion that the said part contained the following percentages:

	Oil	...	...	...	...	...	...	per cent
(f)	Albuminoids	...	...	...	...	...	...	"

(g)  
and that (h)

The analysis was made in accordance with the methods of analysis prescribed in the Regulations.

As witness my hand this ..... day of ..... 20.....

[Name of Analyst]  
Analyst at Port-of-Spain

- (a) Here insert the name of the person delivering the sample, and if so "by post".
- (b) Here insert the name of the article as stated on the invoice.
- (c) Here insert the distinguishing mark on the sample.
- (d) The invoice or copy invoice, and any circular or advertisement given to the Analyst, will be initialled by the Analyst for purposes of identification and annexed to this Certificate.
- (e) Here insert name of the person requesting the analysis.
- (f) The percentage of albuminoids is to be taken as the percentage of nitrogen multiplied by 6.25.
- (g) The percentages of nutritive and other ingredients present, when any statement of such percentages is contained in the invoice, or in any accompanying circular or advertisement descriptive of the article.
- (h) Here state, as the case may be—
  - (i) Whether the composition of the article agrees with the statements contained in the invoice, and with the name or description under which the article is sold, so far as the same implies that it is prepared from one particular substance or seed only, or from two or more particular substances or seeds only; and, if not, in what respect.
  - (ii) In what respect, if any, the invoice or description of the article contained in any such circular or advertisement, is false in any material particular to the prejudice of the purchaser.
  - (iii) Whether the article is suitable for feeding purposes for cattle (as defined by the Act), or for poultry, as the case may be; and if not, in what respect.
  - (iv) Whether the article contains any ingredient deleterious to cattle (as defined by the Act), or to poultry, as the case may be, or any ingredient worthless for feeding purposes and not disclosed in the invoice; and, if so, whether, in either case, to an extent materially prejudicial to the purchaser.
  - (v) Where separate samples are taken of the portion of a feeding stuff which is mouldy, sour, or otherwise unsuitable for feeding purposes, and also of the residue of the feeding stuff, state the estimated proportion of the unsuitable feeding stuff in the certificate relating to the unsuitable portion.

**FORM C**

Regulation 6.

**APPOINTMENT BY PURCHASER OF AGENT FOR THE PURPOSES OF THE FERTILISERS AND FEEDING STUFFS ACT**

I, A.B., of ..... hereby appoint C.D. of ....., or the Secretary for the time being of the ..... Association (or as the case may be) to do on my behalf all things necessary for the purpose of obtaining an analysis under the Fertilisers and Feeding Stuffs Act, of the fertiliser or feeding stuff bought by me under an invoice a copy of which is annexed.

.....  
*Signature*

**FORM D**

Regulation 13.

**FERTILISERS**

Note—In this Schedule the figures relating to limits of Error represent percentages of the whole bulk.

Example of Application of Schedule—E.g., in the case of a Bone Compound, if the percentages stated in the invoice are, soluble phosphates, 20; insoluble phosphates, 8; nitrogen, 1; then the warranty implied under section 5(1) of the Act will be that the fertiliser contains: soluble phosphates, 19 to 21 per cent; insoluble phosphates, 7 to 9 per cent; nitrogen, 0.7 to 1.3 per cent.

Description of Fertiliser	Limits of Error			
	Soluble Phosphates	Insoluble Phosphates	Nitrogen	Potash
1. Superphosphate ... ..	1	—	—	—
2. Dissolved Bones (Vitriolised or Vitriolated) made from Raw Bones and Acid only—	1	—	—	—
(I) When the total of the percentages of Phosphates (soluble and insoluble) stated in the invoice amounts to thirty-two or more, then—				
(a) If the excess of the actual percentage of insoluble Phosphates over that stated in the invoice is three or more ...	4	—	0.3	—
(b) If such excess is not less than two, but is less than three ...	3	—	0.3	—
(c) If such excess is not less than one, but is less than two ...	2	—	0.3	—
(II) In all other cases ... ..	1	1	0.3	—
3. Bone Compounds... ..	1	1	0.3	—
4. Compound Manures (other than Bone Compounds, but including Dissolved or Equalised Guano)—				
(a) If the respective percentages of Nitrogen and Potash stated in the invoice do not exceed four...	1	1	0.3	0.3
(b) If such respective percentages exceed four ... ..	1	1	0.5	0.5

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Description of Fertiliser	Limits of Error			
	Soluble Phos-phates	Insoluble Phos-phates	Nitrogen	Potash
5. Sulphate of Ammonia ... ..	—	—	0.5	—
6. Nitrate of Soda ... ..	—	—	0.5	—
7. Ground Hooves and Horns ... ..	—	—	0.5	—
8. Dried Blood ... ..	—	—	0.5	—
9. Fish Guano and Meat Meal ... ..	—	2	0.5	—
10. All Cakes and Meals (other than Bone or Meat Meal) ... ..	—	—	0.5	—
11. Ground Bones and Bone Meal ... ..	—	2	0.5	—
12. Basic Slag and Basic Superphosphate ... ..	*2	2	—	—
13. Shoddy, Wool, and Hair Waste	—	—	1	—
14. Kainit and other Potash Salts—				
(a) Where the percentage of potash stated in the invoice does not exceed fifteen	—	—	—	1
(b) Where such percentage exceeds fifteen	—	—	—	2
15. Nitrate of Potash ... ..	—	—	0.5	2
16. Peruvian and other natural Imported Guanos—				
(a) Where the percentage of insoluble Phosphate stated in the invoice does not exceed thirty ... ..	—	3	—	0.5
(b) Where such percentage of insoluble Phosphate exceeds thirty... ..	—	5	—	0.5
(c) Where the percentage of Nitrogen stated in the invoice does not exceed three ... ..	—	—	0.5	0.5
(d) Where such percentage of Nitrogen exceeds three and does not exceed five	—	—	0.75	0.5
(e) Where such percentage of Nitrogen exceeds five ... ..	—	—	1	0.5

\*That is soluble in solution of Citric Acid of the prescribed strength.

**FORM E**

Regulation 13.

**FEEDING STUFFS**

Note—In this Schedule the percentage of albuminoids is to be taken as the percentage of nitrogen multiplied by 6.25.

Example of Application of Schedule—E.g., in the case of a linseed cake, if the percentages stated in the invoice are, oil, 10; albuminoids, 30; then the warranty implied under section 5(2) of the Act will be that the linseed cake contains: oil, 8.75 to 11.25 per cent; albuminoids, 26.25 or 33.75 per cent.

Description of Feeding Stuff	Limits of Error
Decorticated Cotton Cake or Meal ...	One-tenth of the percentage of oil and one-tenth of the percentage of albuminoids stated in the invoice
Undecorticated Cotton Cake or Meal ...	
Earth Nut or Ground Nut Cake or Meal ...	
Palm Kernel or Palm Nut Cake or Meal ...	
Coconut Cake or Meal ...	
Niger Seed Cake or Meal ...	
Sesame Seed Cake or Meal ...	
Sunflower Seed Cake or Meal ...	
Hemp Seed Cake or Meal ...	
Kurdee or Safflower Cake or Meal ...	
Compound Cakes and Meals ...	One-eighth of the percentage of oil and one-eighth of the percentage of albuminoids stated in the invoice
Linseed Cake or Meal ...	
Rape Cake or Meal ...	
Maize Products ...	One-fifth of the percentage of oil and one-fifth of the percentage of albuminoids stated in the invoice.
All other feeding stuffs (as above defined in regulation 2) not otherwise specified in this Schedule ...	