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# A feeding experiment

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# A FEEDING EXPERIMENT.

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R. P. SPEER.

Several years ago I saw an interesting account of a feeding experiment in a newspaper, but the result was not satisfactory. The statement was as follows: "Two fat steers which had been off feed for twelve hours, were fed good rations of corn meal in the morning, and as soon as it was eaten, they were driven across the street to a slaughter house and butchered. When their stomachs were examined, it was found that most of the meal had passed directly from their gullets to the third apartments or manifolds of their stomachs," but here the experiment was dropped. Dr. Armsby says in his work on cattle feeding, "that cows have been wintered on corn meal exclusively, and that, although rumination was entirely suspended for several months, no ill effects were observed." As many farmers feed meal and grain to their cows before they give them hay, it is important that we should know whether the remastication of such food is advantageous or not. When we feed meal in large quantities to fattening cattle, much of it passes through them undigested. By mixing meal with cut hay or straw, we could compel cattle to remasticate a large share of it. Would it pay to do so or not, is a question which I tried to solve in February and March of 1889. From a lot of twenty-nine calves, I selected six animals that were from 9 to 10 months old, and much alike in size and vigor. On the eighth day of February, three of them were placed in one stall and the other three in another. On the first day of the trial each lot of calves received ten pounds of corn and cob meal in the morning and as much more in the evening, and both lots received all of the hay and water that they wanted from the beginning to the end of the experiment. In the west stall the meal was fed dry and timothy hay was fed afterwards. We ran a part of the hay for the lot in the east stall through a feed cutter, and at the regular feeding times some of it was moistened and the rations of meal were thoroughly mixed with it before they were given to the calves. In a few days the daily allowance of meal for each lot of calves was increased from twenty to twenty-four pounds, which was the daily meal

ration afterwards to the end of the trial. After the 12th of March, each lot of calves received daily seven pounds of beets. The weight of each calf was recorded daily from the beginning to the end of the experiment. For the result of the trial, see the following tables and explanatory notes:

**THREE CALVES FED IN WEST STALL.**

Fed on dry corn and cob meal and timothy hay, (*ad libitum*) afterwards.

AVERAGE WEIGHT.	1ST CALF. Lbs.	2D CALF. Lbs.	3D CALF. Lbs.
First week, Feb. 8-15.....	450.3	420.6	484.8
Second week, Feb. 16-22.....	468.1	437.6	501.3
Third week, Feb. 23 March 1.....	473.3	450.0	513.6
Fourth week, March 2-8.....	489.4	472.0	534.1
Fifth week, March 9-15.....	508.0	486.8	544.4
Nine days, March 16-24.....	518.2	495.5	550.7
Seventh week, March 25-31.....	524.0	504.7	554.0
<b>Total gain of each animal in 44 days.....</b>	<b>73.7</b>	<b>84.1</b>	<b>69.7</b>

Sum of gains, 227.5 pounds.

Sum of initial weights, 1355.2 pounds.

Gain on original weights, 16.8 per cent.

In 51 days the three calves ate 1232 pounds corn and cob meal.

In 51 days the three calves ate 131 pounds roots (beets).

In 51 day the three calves ate timothy hay *ad libitum*.

## THREE CALVES FED IN EAST STALL.

Fed on corn and cob meal and cut timothy hay moistened and mixed together.

AVERAGE WEIGHT.	4TH CALF. Lbs.	5TH CALF. Lbs.	6TH CALF. Lbs.
First week, Feb. 8-15.....	494.1	461.1	483.6
Second week, Feb. 16-22.....	508.7	473.1	497.0
Third week, Feb. 23 March 1.....	515.0	479.8	500.8
Fourth week, March 2-8.....	528.5	499.7	517.6
Fifth week, March 9-15.....	537.5	506.1	534.4
Nine days, March 16-24.....	547.1	516.3	549.1
Seventh week, March 25-31.....	554.4	526.6	562.0
Total gain of each animal in 44 days.....	61.3	65.5	78.4

Sum of gains, 205.2 pounds.

Sum of initial weights, 1438.8 pounds.

Gain on original weights, 14.3 per cent.

In 51 days the three calves ate 1232 pounds of corn and cob meal.

In 51 days the three calves ate 131 pounds roots (beets).

In 51 days the three calves ate timothy hay *ad libitum*.

As an hour and a half intervened between the feeding of meal to the calves in both stalls and the feeding of liberal supplies of hay, it is probable that none of the dry meal which was fed to the calves in the west stall was remasticated, and that most of the meal that was fed to the other calves was re-masticated. Whether more of the meal was digested in the first instance, or whether the digestibility of the crude fibre and protein of the moistened hay was depressed by the corn meal in the second instance, it was not possible for us to determine. But the result of the experiment indicates that it is best to feed corn meal and other similar food which does not need remastication before hay or other coarse fodder, so that it may be allowed to pass to the third apartment of the animal's stomach before the latter enters it. In the one instance, the gain was 16.8 per cent. on the original live weight of the animals; while in the other it was only 14.3 per cent., a difference great enough to warrant a repetition of the experiment.

[END OF VOLUME ONE.]

# ERRATA TO VOLUME I, (BULLETINS I TO 12 INCLUSIVE).

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- Page 11 in title, read Fodder Analysis for Fodder. (*Analysis*).  
Page 307 line 18, read Glauber's Salt for Epsom Salt.  
Page 500 line 33, read ten for two.  
Page 25 line 32, read receive for receipt.  
Page 26 line 5, read harrowed for honowed.  
Page 27 line 6, read buried for burried.  
Page 28 line 5, read remedies for remidies.  
Page 28 line 13, read remedies for remidies.  
Page 28 line 14, read emulsion for emultion.  
Page 28 line 19, read remedied for remidied.  
Page 31 line 37, read summarising for summarizing.  
Page 33 line 15, read leaves for leavas.  
Page 33 line 17, read arsenic for artenic.  
Page 35 line 1, read solutions for resolutions.  
Page 161 line 28, read Osborn for Orburn.  
Page 168 line 33, read probable for probably.  
Page 170 line 10, read wire-worms for wire-rooms.  
Page 171 line 12, read cabbages for cabbage.  
Page 171 line 30, read sexes for sex.  
Page 171 line 37, read larva for larvæ.  
Page 173 line 13, read brassicæ for Borassicæ.  
Page 173 line 18, read gardener for gaidner.  
Page 174 line 40, read begin for begins.  
Page 175 line 17, read pupa for pupæ.  
Page 176 line 13, read stupefied for stupified.  
Page 178 line 31, read flat for flat.  
Page 179 line 1, read codling for coddling.  
Page 182 line 16, read enlarged for enlarggd.  
Page 183 line 11, read insecticide for insecteide.  
Page 183 line 42, read telarius for telarius.  
Page 185 line 28, read shamp oed for smampooed.  
Page 187 line 24, read recommend for reccommend.  
Page 187 line 32, read codling for codling.  
Page 196 line 12, read thrown for trown.  
Page 284 line 34, read *multispinosa* for *apinostissima*.  
Page 286 line 2, read Hematopinus for Hæmatopinus.  
Page 286 line 4, read Com-stock for Comstalk.  
Page 388 line 15, read first for middle.  
Page 494 line 13, read *maculatus* for *aspersus*.  
Page 497 line 13, read conclusions for emulsions.

# INDEX TO VOLUME I,

(BULLETINS I TO 12 INCLUSIVE),

## A.

Acids, amount of in apples.....	88
<i>Acraspis lanæglobuli</i> .....	288
<i>Acraspis niger</i> .....	282
<i>Agrotis auxillaris</i> .....	542
<i>Agrotis badinodis</i> .....	542
<i>Agrotis bicarnea</i> .....	541
<i>Agrotis brunneicollis</i> .....	542
<i>Agrotis clandestina</i> .....	541
<i>Agrotis 4-dentata</i> .....	542
<i>Agrotis gladiaria</i> .....	542
<i>Agrotis c-nigrum</i> .....	541
<i>Agrotis mercenaria</i> .....	542
<i>Agrotis messoria</i> .....	538
<i>Agrotis saucia</i> .....	540
<i>Agrotis subgothica</i> .....	539
<i>Agrotis suffusa</i> .....	542
<i>Agrotis tessellata</i> .....	539
<i>Agrotis tricolor</i> .....	539
<i>Agrotis velleripennis</i> .....	542
<i>Agrotis venerabilis</i> .....	542
<i>Agrotis ypsilan</i> .....	540
Albuminoids, concentration of in ripe trees.....	122
Albuminoids, uses of.....	345
<i>Amphibolips nubilipennis</i> .....	284
Amylic Alcohol, as a preserving agent.....	484
Analyses of Apples.....	81, 90
Apple Twigs.....	99
Buttermilk.....	319, 487
Sorghum.....	152, 328, 531
Sorghum Syrup.....	336
Mill and Diffusion Juices.....	335
Sugar Beets.....	321, 521
<i>Andricus singularis</i> .....	284
Angle-worms, food of prairie squirrel.....	241
<i>Anthonomus 4-gibbus</i> .....	492
<i>Anthonomus prunicida</i> , (see Plum Gouger).....	378
Aphides, potato water for.....	193
<i>Aphis mali</i> .....	182
Apples, analysis of.....	82
Apple aphid, habits and remedies.....	182
Apple curculio.....	492
Apples, infested by Plum curculio.....	375
Apple Leaf-hopper.....	190
Apples Russian, hardy and tender.....	54
Apples, tender varieties of.....	48
Apple Twigs, analysis of.....	99

Apple Twigs under the microscope.....	104
Ashes, for Cucumber Beetle.....	175, 547
Assimilation of plant food.....	49
Army-worm.....	544
Arsenic; absorbed by foliage.....	33
Arsenic, experiments with.....	401
Arsenic solution, effect on insects.....	32
Arsenic solution on foliage.....	30
Arsenites, (see Arsenic, London Purple and Paris Green.)	

## B.

Baits, for wire-worms.....	169
Barley, Manshury.....	393
Beetles, food of prairie squirrel.....	240, 241
Blades on points of corn husks.....	5
Blissus leucopterus, (see Chinch Bug).	
Blossoms of plums are defective frequently.....	96
Blue Grass, a chemical study of.....	431
Borers, apple tree.....	177
Borer, cottonwood.....	494
Borer, currant.....	494, 495
Borer, flat-headed.....	177
Borer, round-headed.....	178
Box-elder Cecidomid.....	502
Boxes, for cucumber beetle.....	547
Bran, wheat, in fattening steers.....	205, 234
Brine Bath Test, for fat in milk.....	464
Brome grass, awnless.....	466
Brome grass, short awned.....	465
Buckwheat, Japan.....	262
Butter from sweet cream.....	317
Butter milk, losses of fat in.....	319, 487

## C.

Cabbage Plant-louse.....	183
Cabbage Plusia.....	173
Cabbage Worms.....	171, 502, 536
Carbohydrates and fat, uses of.....	345
Carbolic acid and plaster for the Codling Moth.....	270
Carbolic acid and soap for the borers.....	178
Carbolic acid for cucumber beetle.....	547
Carbolic soap, for animal parasites.....	186
Carbonate of Copper with arsenites upon foliage.....	418
Carpocapsa pomonella, (see Codling Moth).	
Cattle lice.....	184
Cecidomyia negundinis, (see Box-elder Cecidomid).	
Chemical study of Blue Grass.....	431
Cherries, very hardy new varieties.....	36
Chinch Bug.....	549
diseases of.....	57
remedies for.....	23
Chionaspis furfurus.....	502
Chrysobothris femorata.....	177
Climate, change of.....	395
Clover.....	397

Clover-leaf Caterpillar.....	535
Clovers, compared.....	468
Coccotorus prunicida. (see Plum Gouger).	
Codling Moth.....	179, 502, 270
Coleoptera, (see Beetles).	
Composite Sample.....	357, 368, 482
Canoirachelus nenuphar.....	370
Copperas, for cucumber beetle.....	546
Copperas, for cut-worms.....	164
Corn-and-Cob Meal, in fattening steers.....	205, 234
Corn blades on husks of ears.....	5
Corn, characteristics of different varieties.....	253
Corn, cross-fertilization of.....	255
Corn, deep or shallow culture of.....	247
Corn ensilage, in fattening steers.....	205, 234, 236
Corn ensilage, not very nutritious.....	353
Corn fodder, in fattening steers.....	205, 236
Corn fodder, mature and immature compared.....	353
Corn fodder, value of.....	438
Corn, pictures of different kinds of ears.....	258
Corn Plant-louse.....	183
Corn pollen under the microscope.....	6
Corn Root-worm.....	137, 170
Corn, shelled, in fattening steers.....	205, 236
Corn silks, in a receptive condition for 20 days.....	255
Corn tassels, silks and blades.....	3
Corrosive sublimate, for animal parasites.....	186
Crambus exsiccatu8.....	166
Creamery and Dairy Notes.....	481
Cross-fertilization, Notes on.....	10, 91
Cucumber Beetle, striped.....	174, 546
Cultivators, different kinds compared.....	247
Curculio, apple.....	492
Curculio-proof, plums.....	375
Curculio parasite.....	378, 887
Curculio, (see plum curculio).	
Currant Borer.....	494
Cut-worms.....	161
Cut-worms, food of, remedies.....	538, 545
Cut-worms, food of prairie squirrels.....	240, 241, 242
Cynipidae.....	281

## D.

Dew affecting injury to foliage by arsenites.....	402
Diabrotica longicornis.....	170
Diabrotica vittata, (see Cucumber Beetle).	
Diffusion, in sugar industry.....	146
Dryophanta liberæcellulæ.....	283

## E.

Early seeding.....	399
Egg laying, of Plum Gouger.....	380
of Apple Curculio.....	492
Empoasca mali.....	190
Empusa, (see Entomophthora).	



Ensilage, corn, in fattening steers.....	205, 234, 236
Ensilage, sorghum, in fattening steers.....	205, 234, 236
Entomophthora, of Chinch Bug.....	57, 58, 60

## F.

Fattening of steers.....	205
Fattening, indoors vs. outdoors.....	205, 236
Feeding experiments.....	205, 519
Feeding Standards.....	349
Fluoride of sodium, as a preserving agent.....	484
Fodder Analysis, Explanation of Terms.....	11
Fodder analysis, methods employed.....	480
Fodders, comparison of in fattening steers.....	205
Fodders, dry matter in.....	208
Fodder loader, description of.....	439
Food of prairie squirrel.....	240
Food of Support.....	351
Food which causes growth.....	351
Fruit trees, Characteristics of.....	48
Fruit trees, injured most in the spring.....	53
Fruit trees, structure of.....	47
Fungi cause rusts, mildew, blight, etc.....	64
Fungicides with arsenites on foliage.....	416
Fungi injurious, descriptions of.....	63
Fusel oil, as a preserving agent.....	484

## G.

Galls.....	281
Gas lime, for cucumber beetle.....	547
Gonia sp.....	543
Grasses, promising wild varieties.....	76
Grasses, wild and tame described.....	448
Grass-hopper, eaten by prairie squirrels.....	243

## H.

Hadena devastatrix.....	543
Hadena lignicolar.....	544
Hadena sputatrix.....	543
Hadena stipata.....	544
Hamatopinus suis, (see Hog Louse).	
Hay caps, great value of.....	445
Hay, from Blue Grass, analyses of.....	435
Hay, grooved poles used in curing.....	445
Hay, new method of curing.....	443
Heat, generated by growing plants.....	97
Hellebore for Cucumber Beetle.....	176, 547
Hellebore, preparation of.....	188
Hematœpinus eurysternus.....	184
Hibernating of trees.....	50
Hog Louse.....	286
Hungarian grass for chinch bugs.....	203
Hymenoptera, eaten by prairie squirrels.....	241
Hyperplatys aspersus (maculatus).....	474

## I.

Indoor fattening of steers.....	205, 236
Inclosing plants against cut-worms.....	165
Injurious insects.....	161
Injurious Insects and Insecticides.....	535
Insecticides, preparation of.....	187
Insecticides, (see arsenic, ashes, carbolic acid, copperas, corrosive sublimate, hellebore, kerosene, kerosene emulsion, kerosene extract of pyrethrum.)	
Insecticides, (see kerosene and lard, London puple, nitrate of soda, Oxide of Silicates, Paris green, pyrethrum, potato water, rosin mixture, salt peter, soap, sweetened water, sulphur and lard, and tobacco decoction).	
Iowa Station Milk Test.....	295, 484
Iowa Station Milk Test, a correction.....	355

## K.

Kerosene, as an insecticide.....	189
Kerosene and lard for animal parasites.....	185, 286
Kerosene Emulsion, as a Sheep Dip.....	495
Kerosene Emulsion, for animal parasites.....	286, 185, 495
Kerosene Emulsion, for cabbage worms.....	174
Kerosene Emulsion, for plant lice.....	182, 183
Kerosene Emulsion, for Red Spider.....	184
Kerosene Emulsion, preparation of.....	189, 497
Kerosene Emulsion, with the arsenites.....	413
Kerosene Emulsion, with Pyrethrum for Red Spider.....	184
Kerosene Extract of Pyrethrum.....	548
Kerosene, for cucumber beetle.....	546

## L.

Lady Beetles, food of prairie squirrel.....	240, 241
Lampronota americana.....	543
Lard and kerosene, for animal parasites.....	286
Lard and sulphur, for animal parasites.....	287
Late grafting of the cherry.....	42
Leaf-hopper, apple.....	190
Leucania unipuncta.....	544
Lice, cause of.....	289
on cattle.....	184
on hogs.....	286
Lime, affecting injury to foliage by the arsenites.....	410
Lime, for Cucumber Beetle.....	175
London purple, experiments with.....	401
London purple for cabbage worms.....	174
for codling moth.....	180, 270
London purple, for Cucumber Beetle.....	176
London purple for plum curculio.....	181, 370, 371, 383
London purple, in Bordeaux mixture on foliage.....	417
London purple, in carbonate of copper on foliage.....	418
London purple, in kerosene emulsion as an insecticide.....	413
London purple, in rosin mixture.....	415
London purple, in soap solution on foliage.....	415

London purple, in sulphate of copper on foliage.....	417
London purple, preparation of.....	187
London purple, strength to use.....	34, 388

## M.

Mamestra renigera.....	543
Mangels, in fattening steers.....	234
Mercurial ointment, for animal parasites.....	186
Micrococcus insectorum.....	57
Milk Test.....	295, 484
Milk Test, brine bath method.....	484
Millets, different kinds of.....	261
Moisture, how to hold it in the soil.....	249
Moisture in green plums, as affecting curculio attack.....	377
Mulching necessary during drouths.....	249

## N.

Neuroterus flavipes.....	281
Neuroterus minuta.....	281
Neuroterus vernus.....	281
Nephelodes violans.....	544
Nitrate of soda, for cucumber beetle.....	546
Nozzler and spraying machine.....	193
Nutrients digestible, prices of.....	397
Nutrients in different kinds of feed stuffs.....	347

## O.

Oak bur, galls on.....	281, 283
Oak, red, galls on.....	283
Oak, scarlet, galls on.....	283
Oak, white, galls on.....	283
Oats, 30 kinds tested.....	291
Oats, promising varieties of.....	201
Organization of Experiment Station.....	3
Outdoor fattening of steers.....	205, 236
Oxide of Silicates, for cabbage worms.....	536
Oxide of Silicates, for cucumber beetle.....	176

## P.

Parasites.....	286, 495
on domestic animals.....	184
Parasites.....	378
on plum curculio.....	387
Paris green, experiments with.....	401
Paris green for cabbage worms.....	174, 536
Paris green for codling moth.....	180, 270
Paris green in kerosene emulsion as an insecticide.....	413
Paris green in rosin mixture.....	415
Paris green in soap solution on foliage.....	415
Paris green, preparation of.....	187
Paris green, strength to use.....	34
Paste, affecting injury to foliage by arsenites.....	407

<b>Pears, promising Chinese kinds</b> .....	75
<b>Pears, promising Russian kinds</b> .....	73
<b>Pec lus, in apples</b> .....	86
<b>Pieris protodica</b> .....	173
<b>Pieris rapae</b> .....	171, 502, 536
<b>Plant lice, potato water for</b> .....	181, 193
<b>Plowing should be done in the fall</b> .....	249
<b>Plowing, spring and fall</b> .....	391
<b>Plowing, to destroy cut-worms</b> .....	163, 164
<b>Plum curculio</b> .....	181, 370, 502
<b>Plum curculio, infesting apples</b> .....	375
<b>Plums, curculio proof</b> .....	375
<b>Plum Gouger</b> .....	370, 371, 502
<b>Plum Gouner parasite</b> .....	387, 388
<b>Plums, moisture in, as affecting curculio attack</b> .....	377
<b>Plums, percentage of attack by curculios</b> .....	374
<b>Plusia brassicae</b> .....	173
<b>Poisoned baits for cut worms</b> .....	165
<b>Polarization, error of single</b> .....	154
<b>Potato Experiment</b> .....	507
<b>Potato stalk-weevil</b> .....	490, 502, 547
<b>Potato-water for animal parasites</b> .....	185, 193
<b>Potato-water for plant lice</b> .....	193
<b>Pounds of nutrients in each ton of hay, &amp;c</b> .....	348
<b>Prairie squirrel, food habits of</b> .....	240
<b>Prenocerus supernotatus</b> .....	494
<b>Preserving Powders, (Poisons) for keeping samples of milk for testing</b> .....	365, 482, 483
<b>Prickley Comfrey</b> .....	470
<b>Propagation of shrub by root cuttings</b> .....	135
<b>Propagation of trees by cuttings</b> .....	133
<b>Prunus simoni, not attacked by curculio</b> .....	374
<b>Pumps for spraying</b> .....	193
<b>Pyrethrum for animal parasites</b> .....	186
<b>Pyrethrum for cabbage worms</b> .....	174
<b>Pyrethrum for cucumber beetle</b> .....	176, 546
<b>Pyrethrum for plant lice</b> .....	183
<b>Pyrethrum for red spider</b> .....	184
<b>Pyrethrum in kerosene as an insecticide</b> .....	548
<b>Pyrethrum, preparation of</b> .....	188
<b>Pyrethrum, volatility of the essential oil</b> .....	190

Q.

<b>Quercus alba, galls on</b> .....	289
<b>Quercus coccinea, galls on</b> .....	283
<b>Quercus macrocarpa, galls on</b> .....	281
<b>Quercus rubra, galls on</b> .....	283

R.

<b>Rain, as affecting injury by arsenites</b> .....	409, 403
<b>Rations, comparison of in fattening steers</b> .....	205
<b>Rations, how computed</b> .....	550
<b>Rations, varied, in fattening steers</b> .....	205, 234
<b>Red Spider</b> .....	183
<b>Recording desk, new form of</b> .....	337

Relative Value Plan at Creameries.....	356, 363, 483
Relative Value Table. ....	366, 368, 534
Report, second annual.....	337
Report, third annual.....	503
Reserve food materials in ripe trees.....	108
Rhodites spinosissima (multispinosa).....	284
Rose galls.....	284
Rosin mixture with London purple and Paris green.....	415
Rotation of crops, for cabbage plant louse.....	183
Rotation of crops, for corn plant louse.....	183
Rotation of crops, for cut-worms.....	163
Rusted wheat, oats, etc.....	393

## S.

Salt as a fertilizer.....	303
Salt peter, for cucumber beetle.....	546
Sample, Composite.....	357, 363, 483
Saperda candida.....	178
Scurvy bark-louse.....	502
Second Financial Statement.....	339
Sesia tipuliformis.....	495
Shelled corn, in fattening steers.....	205, 236
Sheep-dip, kerosene emulsion as a.....	495
Sigolphus canadensis.....	387, 388
Sigolphus curculionis.....	378, 387
Sigolphus curculionis var. rufus.....	378
Soap, added to the arsenites.....	409, 415
Soap for plant lice.....	152
Sod web-worm.....	166
Sod web-worm, eaten by prairie squirrel.....	240, 241, 242
Sodium fluoride, as a preserving agent.....	484
Sorghum.....	142, 327, 530
Sorghum, analyses of.....	152, 328, 531, 532
Sorghum, effects of suckering upon.....	156
Sorghum, effects of topping upon.....	158
Sorghum ensilage, in fattening steers.....	205, 234, 236
Sorghum, experiments in Kansas.....	147
Sorghum, experiments in New Jersey.....	148
Sorghum, Improvement of by selection.....	149, 327
Sorghum seed.....	533
Sorghum, sugar experiments.....	334
Spermophilus 13-lineatus.....	240
Spraying machinery.....	193
Squirrel, striped prairie.....	240
Starch, concentration of in ripe trees.....	118
Steers, comparison of fodders in fattening.....	205
Sub-soiling, why it pays.....	248
"Suckering" of sorghum, effects of.....	156
Sugar Beets.....	321, 519
Sugar Beets, Analyses of.....	321, 521
Sugar Beet seed.....	527
Sugar Experiments.....	264
Sugars, in apples.....	88
Sugar industry, State encouragement of.....	145
Sugaring to trap cut-worm moths.....	166
Sulphate of copper with London purple on foliage.....	417
Sulphur and lard, for animal parasites.....	186, 286

Sunlight, as affecting injury to foliage by arsenites.....	402, 409
Sweet cream butter .....	317
Sweet cream butter, keeping quality .....	481
Sweetened water, for curculios and codling moth.....	180
Syrup, sorghum, adulteration of.....	159, 336

## T.

Test for determining ripeness of trees.....	132
Tetraanychus telarius.....	183
Timothy hay, in fattening steers.....	205, 234
Timothy wild, from Idaho.....	455
Tobacco decoction, (see animal parasites).	
Tobacco smoke, for plant lice.....	183
Topping of sorghum, effects of.....	158
Trapping cut-worms.....	165
Trichobaris trinotata in Physalis sp.....	490, 547
Trichodectes scalaris.....	184

## V.

Values of crops.....	395
Vineyard, the college.....	290

## W.

Whale-oil Soap, for plant lice.....	183
Whale-oil Soap, for red spider.....	184
Wheat bran, in fattening steers.....	205, 234
Wheat and oats in rows like corn.....	201
Wheat, spring, kinds tested.....	392
Wheat spring, promising varieties of.....	200
Wheat winter, kinds tested.....	393
Wier theory.....	375
Wild plums, best varieties of.....	95
Winter apples not adapted to Iowa.....	56
Wire-worms.....	168
Wire-worms, food of prairie squirrels.....	241

## Y.

Young trees best for cherry orchards.....	41
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