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(54) Benævnelse: **FREMGANGSMÅDE TIL UDSPREDNING AF GRANULATMATERIALE**

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METHOD FOR SPREADING GRANULAR MATERIAL

Description

The invention relates to a method for spreading granular material according to the preamble of claim 1, and to an agricultural spreader according to the preamble of claim 13.

Such a method is disclosed in DE 198 43 747 A1.

In agriculture, agricultural spreaders which have two rotationally-drivable spreading disks are typically used to spread granular material. Different spreading modes are thereby regularly adjustable at the spreaders, so that the spreading of granular material may be adapted during the spreading process.

While driving on inner driving tracks within a boundary-distal interior region of a utilized agricultural area, the spreading of granular material typically takes place in what is known as normal spreading mode. During travel on an outer boundary driving track within a boundary-proximal region of the utilized agricultural area, the spreading of the granular material takes place in a limited spreading mode, so that an optimally uniform transverse distribution of the granular material can be achieved even in the vicinity of the boundary.

In practice, different driving modes have become established in the boundary-proximal spreading of granular material, which driving modes lead, e.g., in the spreading of fertilizer, to severe over- and under-fertilization near the boundary.

The aim underlying the invention is thus to be able to realize an optimally uniform, transverse distribution of the granular material even in the vicinity of the boundary. Ideally, at least partial driving lane systems should thereby be used, which have already become established in practice.

The aim is achieved via a method according to claim 1. It is provided that a boundary spreading device for deflecting at least a portion of the discharged granular material be used in the limited spreading mode, and, in comparison to normal spreading mode, a reduced total amount of granular material be applied.

The invention utilizes the realization that, by using a boundary spreading device for deflecting at least a portion of the discharged granular material, in combination with a reduction in the amount of granular material, a comparatively uniform distribution of granular material may be achieved even in boundary-proximal regions.

The boundary spreading device is preferably positioned in the discharge region of a spreading disk and is a component of the agricultural spreader. In the limited spreading mode of the agricultural spreader, the boundary spreading device is preferably arranged in the discharge region of the spreading disk of the agricultural spreader, said spreading disk being oriented away from the boundary, wherein the boundary spreading device is preferably arranged on the side, oriented towards the boundary, of the spreading disk oriented away from the boundary.

The total amount of granular material relates to the sum of the respective amounts of granular material dispensed to the two spreading disks. The spreading of a reduced total amount of granular material may, for example, thus be achieved in that a reduced quantity of granular material is dispensed to the spreading disk, oriented away from the boundary, and/or to the spreading disk, oriented towards the boundary, of the agricultural spreader.

The distance of the inner driving tracks, which are driven on in the normal spreading mode of the agricultural spreader, from the boundary of the utilized agricultural area is greater than half of the working width in the normal spreading mode. The distance of the outer boundary driving track, which is driven on in the limited spreading mode of the agricultural spreader, from the boundary of the utilized agricultural area is less than half the working width in the normal spreading mode.

In a preferred embodiment of the method according to the invention, granular material is spread by means of the agricultural spreader in an intermediate spreading mode of the agricultural spreader during travel on an inner boundary driving track that runs, at least in some segments, parallel and adjacent to the inner region of the utilized agricultural area, within the boundary-proximal region of the utilized agricultural area. In the intermediate spreading mode, a reduced total amount of granular material in comparison to the normal spreading mode is preferably applied. In the intermediate spreading mode, a different deflection

device, e.g., a limiter, is preferably used for deflecting the discharged granular material. The deflection device used in the intermediate spreading mode is preferably arranged on the boundary-oriented side of the spreading disk oriented towards the boundary. Alternatively or additionally, an adapted blade position of the throwing blades of at least one spreading disk can be set in the intermediate spreading mode, in comparison to the normal spreading mode. The adaptation of the scattered image thus does not take place in the intermediate spreading mode via the boundary spreading device used in the limited spreading mode, but rather via another deflection device and/or via an adapted blade setting of at least one spreading disk. The inner boundary driving track is preferably located between the outer boundary driving track and the interior region of the utilized agricultural area.

According to the invention, in the limited spreading mode, the spreading of the granular material is provided only by the spreading disk of the agricultural spreader that is oriented away from the boundary of the utilized agricultural area. Alternatively or additionally, in the intermediate spreading mode, the spreading of the granular material is provided by both spreading disks of the agricultural spreader. In the limited spreading mode of the agricultural spreader, the boundary spreading device is preferably arranged between the spreading disks of the agricultural spreader, and/or is arranged in such a way that the granular material discharged from the spreading disk oriented away from the boundary of the utilized agricultural area is deflected, by the boundary spreading device, in the direction of the boundary of the utilized agricultural area. In the limited spreading mode, the spreading disk of the agricultural spreader, said spreading disk being oriented towards the boundary of the utilized agricultural area, is preferably deactivated, and/or no granular material is dispensed to the spreading disk of the agricultural spreader, said spreading disk being oriented towards the boundary of the utilized agricultural area.

In another preferred embodiment of the method according to the invention, a total amount of granular material that is reduced by 75 percent compared to normal spreading mode is applied in the limited spreading mode.

In the limited spreading mode, an amount of granular material that is reduced by 50 percent in comparison to normal spreading mode is preferably dispensed to the spreading disk oriented away from the boundary of the utilized agricultural area.

Preferably, in the limited spreading mode, no spreading of the granular material takes place via the spreading disk oriented towards the boundary of the utilized agricultural area. Alternatively or additionally, in the intermediate spreading mode, a total amount of granular material is applied that is reduced by 25 percent compared to normal spreading mode. In the intermediate spreading mode, an amount of granular material that is reduced by 50 percent in comparison to normal spreading mode is preferably dispensed to the spreading disk oriented towards the boundary of the utilized agricultural area. In comparison to the normal spreading mode, in the intermediate spreading mode, there is preferably no reduction in the amount of granular material dispensed to the spreading disk oriented away from the boundary of the utilized agricultural area. In the intermediate spreading mode, the same quantity of granular material as in the normal spreading mode is thus dispensed to the spreading disk situated inwards with respect to the field.

Moreover, a method according to the invention is advantageous in which the application point of the granular material on the spreading disk of the agricultural spreader, said spreading disk facing away from the boundary of the utilized agricultural area in limited spreading mode, differs from the application point of the granular material to the spreading disks of the agricultural spreader in normal spreading mode. By adapting the application point, different discharge angles may thus be achieved in the limited spreading mode and in the normal spreading mode. Alternatively, the application point of the granular material to the spreading disk of the agricultural spreader in limited spreading mode, said spreading disk facing away from the boundary of the utilized agricultural area, and the application point of the granular material to the spreading disks of the agricultural spreader in normal spreading mode are identical. In this instance, an adaptation of the discharge angle is preferably realized via the throwing blades of the spreading disks.

In another preferred embodiment of the method according to the invention, the application point of the granular material to the spreading disk of the agricultural spreader, said spreading disk facing away from the boundary of the utilized agricultural area, and/or the application point of the granular material to the spreading disk of the agricultural spreader, said spreading disk facing towards the boundary of the utilized agricultural area, in intermediate spreading mode, and the application point of the granular material to the spreading disks of the agricultural

spreader in normal spreading mode, are identical. Alternatively, the application point of the granular material to the spreading disk of the agricultural spreader, said spreading disk facing away from the boundary of the utilized agricultural area, and/or the application point of the granular material to the spreading disk of the agricultural spreader, said spreading disk facing towards the boundary of the utilized agricultural area, in intermediate spreading mode, differs from the application point of the granular material to the spreading disks of the agricultural spreader in normal spreading mode. Preferably, the application point of the granular material to the spreading disk of the agricultural spreader, said spreading disk facing away from the boundary of the utilized agricultural area, and/or the application point of the granular material to the spreading disk of the agricultural spreader, said spreading disk facing towards the boundary of the utilized agricultural area, in intermediate spreading mode, differs from the application point of the granular material to the spreading disks of the agricultural spreader in limited spreading mode.

In a particularly preferred embodiment of the method according to the invention, the distance of the outer boundary driving track from the boundary of the utilized agricultural area is less than 10 m, and preferably less than 5 m. The distance of the boundary driving track from the boundary of the utilized agricultural area may be approximately 3 m, for example. Thus, upon driving the outer boundary driving track, the agricultural spreader moves in the immediate vicinity of the boundary, whereby it is possible to maintain a substantially constant distance from the boundary, even without additional technical equipment. The substantially parallel course of the boundary of the utilized agricultural area and of the outer boundary driving track results from the constant distance between the boundary of the utilized agricultural area and the outer boundary driving track.

Moreover, a method according to the invention is advantageous in which the distance of the inner boundary driving track from the boundary of the utilized agricultural area corresponds to half of the working width in the normal spreading mode. The spreading of granular material in the boundary-proximal region thus takes place both in the limited spreading mode and in the intermediate spreading mode. Boundary driving tracks, whose distance from the boundary of the utilized agricultural area corresponds to half of the working width in normal spreading mode, have already become established in various agricultural areas. The

method according to the invention can thus be implemented at least in part on a driving lane system established in practice.

Moreover, a method according to the invention is preferred in which, upon traversal of the boundary-proximal region, the spreading of the granular material takes place exclusively in the limited spreading mode. The inner driving tracks thus directly adjoin the outer boundary driving track in the direction of the interior region of the utilized agricultural area. Inner boundary driving tracks are not regularly laid in some agricultural areas, so that the application in the region close to the boundary has to take place exclusively in the limited spreading mode. The method can thus also be applied, without additional measures, in agricultural regions in which inner boundary driving tracks are not typical.

In a development of the method according to the invention, a total amount of granular material that is reduced by 50 percent compared to normal spreading mode is spread in the limited spreading mode. In comparison to the normal spreading mode, there is preferably no reduction in the amount of granular material which is applied to the spreading disk facing away from the boundary. In this instance, the spreading disk facing towards the boundary is preferably deactivated in the limited spreading mode, so that no spreading of the granular material takes place via the spreading disk facing towards the boundary.

In a further preferred embodiment of the method according to the invention, a detection of the position of the agricultural spreader on the utilized agricultural area takes place in particular by means of a satellite-assisted position detection system of the agricultural spreader. An automatic setting of the normal spreading mode, limited spreading mode, and/or intermediate spreading mode by the agricultural spreader especially takes place as a function of the detected position of the agricultural spreader. Alternatively, the setting of the normal spreading mode, the limited spreading mode, and/or the intermediate spreading mode may also take place manually by the user of the agricultural spreader. The satellite-assisted position detection system may be a GPS system, for example. The automatic setting of a spreading mode may include the automatic positioning or movement of the boundary spreading device. Alternatively or additionally, the automatic setting of a spreading mode may include the automatic setting of a spreading rate and/or the automatic

setting of an application point of the granular material on the spreading disks of the agricultural spreader. Alternatively, the positioning or moving of the boundary spreading device, the setting of the spreading rate, and/or the setting of the application point of the granular material on the spreading disks of the agricultural spreader may also be performed or initiated by a user of the agricultural spreader.

The aim underlying the invention is further achieved by an agricultural spreader of the aforementioned type, wherein the agricultural spreader according to the invention and its control device are configured to execute the method for spreading granular material according to one of the embodiments described above. With regard to the advantages and modifications of the agricultural spraying apparatus according to the invention, reference is made first to the advantages and modifications of the method according to the invention.

The adjustable spreading modes of the agricultural spreader may include a normal spreading mode, a limited spreading mode, and/or an intermediate spreading mode. In a preferred embodiment of the spreader according to the invention, this comprises a metering device by means of which the discharge quantity of granular material can be adjusted. Alternatively or additionally, the agricultural spreader comprises a granular material spreading system by means of which the application point of the granular material on the spreading disks can be adjusted. The control device is preferably configured to control the metering device and/or the granular material spreading system as a function of the spreading mode set. The metering device preferably comprises two metering members, wherein a respective metering member is associated with the two spreading disks. The quantity of granular material applied to the respective spreading disk may be adjusted via the metering members of the metering device.

In another preferred embodiment of the agricultural spreader according to the invention, this comprises a position detection system - in particular, a satellite-assisted position detection system - by means of which the position of the agricultural spreader on the utilized agricultural area can be detected. The control device is preferably configured to automatically set a spreading mode as a function of the detected position of the agricultural spreader. Alternatively, the control device may be configured to suggest to a user the setting of a spreading

mode as a function of the detected position of the agricultural spreader. The output of the suggestion may, for example, take place via a display and/or sound reproduction device of the agricultural spreader.

Preferred embodiments of the invention are explained and described in more detail below with reference to the accompanying drawings. The following are shown:

Fig. 1 an agricultural spreader during execution of an exemplary embodiment of the method according to the invention for spreading granular material, in a schematic representation; and

Fig. 2 an agricultural spreader during execution of a further exemplary embodiment of the method according to the invention for spreading granular material, in a schematic representation.

Fig. 1 shows a utilized agricultural area 100 with a boundary 102. Granular material, viz., fertilizer, is applied on the utilized agricultural area 100 by means of an agricultural spreader 10, viz., a two-disk fertilizer spreader.

The agricultural spreader 10 has two spreading disks 12a, 12b which are arranged next to one another and are rotationally drivable. The spreading disk oriented away from the boundary 102 is denoted by 12a, wherein the spreading disk facing towards the boundary 102 is denoted by 12b. Depending upon the direction of travel of the agricultural spreader 10, either the left spreading disk or the right spreading disk may be the spreading disk 12b facing towards the boundary 102. The same applies correspondingly to the spreading disk 12a oriented away from the boundary 102.

The agricultural spreader 10 is equipped with a boundary spreading device for deflecting at least a portion of the discharged granular material. The agricultural spreader furthermore 10 has a control device by means of which different spreading modes of the agricultural spreader 10 can be set. The discharge quantity of granular material may, moreover, be adjusted via a metering device of the agricultural spreader 10. The metering device thereby comprises two separate metering members, by means of which the applied quantities on the spreading disks 12a, 12b can be set independently of one another. Moreover, the agricultural spreader 10 has a granular material spreading system, by means

of which the application point of the granular material to the spreading disks 12a, 12b can be set. The metering device and the granular material spreading system are controlled by the control device as a function of the spreading mode set.

During the application process, when driving on inner driving tracks 104, the granular material is spread in a normal spreading mode of the agricultural spreader 10. The inner driving tracks 104 are located within a boundary-distal, inner region of the utilized agricultural area 100. The individual inner driving tracks 104 are at a distance 112 from one another, wherein the distance 112 corresponds to the predetermined working width. Upon spreading of the granular material in the normal spreading mode, a previously determined total amount of granular material is spread. For this purpose, the same discharge quantity 110a, 110b of granular material is applied to both spreading disks 12a, 12b. The discharge quantity of granular material spread in the normal spreading mode subsequently serves as a reference variable, so that the amount of granular material discharged to the spreading disks 12a, 12b in the normal spreading mode is assumed to be 100 percent for reference purposes.

Within a boundary-proximal region of the utilized agricultural area 100, the granular material is spread in a variant manner. In order to spread the granular material in the boundary-proximal region, both an outer boundary driving track 106 and an inner boundary driving track 108 are driven during the spreading of the granular material. The distance 114 between the outermost inner driving track 104 and the inner boundary driving track 108 corresponds to the working width. The distance 116 between the inner boundary driving track 108 and the boundary 102 corresponds to half the working width. The distance 118 between the outer boundary driving track 106 and the boundary 102 is less than 5 m - for example, approximately 3 m.

During the driving of the inner boundary driving track 108, the spreading of the granular material takes place in an intermediate spreading mode of the agricultural spreader 10. In the intermediate spreading mode, a reduced total amount of granular material is applied, in comparison to the normal spreading mode. In comparison to normal spreading mode, 50 percent less granular material is applied to the spreading disk 12b facing towards the boundary 102. The quantity of granular material applied to the spreading disk 12a facing away from the boundary 102 corresponds to the quantity which is also respectively applied to the spreading disks

12a, 12b in the normal spreading mode. Overall, a total amount of granular material results that is reduced by 25 percent in comparison to the normal spreading mode.

In the intermediate spreading mode, for example, a limiter may be used, by means of which the trajectory of the granular material which is discharged from the spreading disk 12b facing towards the boundary 102 may be changed. As an alternative or in addition to the limiter, the throwing blades of the spreading disk 12b may be adapted, in comparison to the normal spreading mode, in order to suitably influence the spread pattern. The application point of the granular material to the spreading disks 12a, 12b is substantially identical in the intermediate spreading mode and in the normal spreading mode. In alternative spreading variants, however, the application points of the granular material in intermediate spreading mode and in normal spreading mode may also differ.

During the driving of the outer boundary driving track 106, the spreading of the granular material takes place in the limited spreading mode of the agricultural spreader 10. In the limited spreading mode, a boundary spreading device for deflecting at least a portion of the discharged granular material is used, wherein the boundary spreading device is arranged in the discharge region, facing towards the boundary 102, of the spreading disk 12a facing away from the boundary 102. In the limited spreading mode, the boundary spreading device is arranged substantially between the spreading disks 12a, 12b. In the limited spreading mode, a reduced total amount of granular material is likewise applied, in comparison to the normal spreading mode. The spreading disk 12b facing towards the boundary 102 is here deactivated in the limited spreading mode, so that no spreading of the granular material by the spreading disk 12b takes place. In comparison to the normal spreading mode, an amount 110a of granular material that is reduced by 50 percent in comparison to the normal spreading mode is applied to the spreading disk 12a facing away from the boundary 102. In the boundary spreading mode, a total amount of granular material is thus applied that is reduced by 75 percent compared to normal spreading mode.

In boundary spreading mode, the application point of the granular material to the spreading disk 12a, which faces away from the boundary 102 of the utilized agricultural area 100, differs from the application point of the granular material to

the spreading disks 12a, 12b in normal spreading mode. In alternative variants of the spreading of the granular material, the application points in the limited spreading mode and in the normal spreading mode are also identical.

Fig. 2 shows an alternative spreading of the granular material. Differing from the spreading of granular material shown in Fig. 1, here, there is no inner boundary driving track, so that the spreading of the granular material upon traversing the boundary-proximal region takes place exclusively in the limited spreading mode while driving on the outer boundary driving track 106.

Again, the spreading disk 12b facing towards the boundary 102 is deactivated, so that the spreading of the granular material takes place exclusively via the spreading disk 12a facing away from the boundary 102 upon driving on the outer boundary driving track 106.

In the case of the illustrated spreading of the granular material, the amount of granular material applied to the spreading disk 12a facing away from the boundary 102 is, however, not reduced as compared to the normal spreading mode. This is necessary because the distance 120 between the outermost inner driving track 104 and the outer boundary driving track 106 corresponds to the predetermined working width, wherein no further driving tracks for the spreading of the granular material are provided between the outer inner driving track 104 and the outer boundary driving track 106.

Since the spreading disk 12b facing towards the boundary 102 is deactivated in the limited spreading mode, a total amount of granular material that is reduced by 50 percent as compared to the normal spreading mode is spread in the limited spreading mode.

The depicted spreader 10 may have a position detection system, e.g., a satellite-assisted position detection system, by means of which the position of the agricultural spreader 10 on the utilized agricultural area 100 can be detected. A spreading mode may thus be set automatically via the control device of the agricultural spreader 10 as a function of the detected position of the agricultural spreader 10. Alternatively, the setting of the different spreading modes may also be adjusted manually by a user of the agricultural spreader 10. For example, the

agricultural spreader 10 may be configured to suggest to the user that a specific spreading mode be set as a function of the current position.

Reference symbols

10	Spreader
12a, 12b	Spreading disks
100	Utilized agricultural area
102	Boundary
104	Inner driving tracks
106	Outer boundary driving track
108	Inner boundary driving track
110a, 110b	Disk-related discharge quantities
112-120	Distances

PATENTKRAV

1. Fremgangsmåde til udspredning af granulatmateriale på et udnyttet landbrugsareal (100) ved hjælp af en landbrugsspredemaskine (10) med to rotationsdrivbare udspredningsskiver (12a, 12b), hvilken fremgangsmåde omfatter følgende trin:

– udspredning af granulatmateriale ved hjælp af landbrugsspredemaskinen (10) i en normal udspredningsmodus for landbrugsspredemaskinen (10), mens der køres på inderkørespor (104) inden for et grænsefjernt inderområde af det udnyttede landbrugsareal (100); og

– udspredning af granulatmateriale ved hjælp af landbrugsspredemaskinen (10) i en begrænset udspredningsmodus for landbrugsspredemaskinen (10) under kørsel på et ydre grænsekørespor (106), der, mindst i nogle segmenter, forløber parallelt med og nabostillet til grænsen (102) for det udnyttede landbrugsareal (100), inden for et grænsenært område af det udnyttede landbrugsareal (100);

hvor en grænseudspredningsindretning til omdirigering af mindst en del af det udkastede granulatmateriale anvendes i grænseudspredningsmodus, og der i sammenligning med normal udspredningsmodus anvendes en reduceret samlet mængde granulatmateriale, **kendetegnet ved, at** udspredningen af granulatmaterialet, i grænseudspredningsmodus, kun finder sted via udspredningsskiven (12a) i landbrugsspredemaskinen (10), idet udspredningsskiven er orienteret væk fra grænsen (102) for det udnyttede landbrugsareal (100).

2. Fremgangsmåde ifølge krav 1,

kendetegnet ved følgende trin:

– udspredning af granulatmateriale ved hjælp af landbrugsspredemaskinen (10) i en mellemste udspredningsmodus for landbrugsspredemaskinen (10) under kørsel på et indergrænsekørespor

(108), der, mindst i nogle segmenter, forløber parallelt med grænsen (102) og nabostillet til inderområdet af det udnyttede landbrugsareal (100), inden for det grænsenære område af det udnyttede landbrugsareal (100);

hvor der, i mellemste udspredningsmodus, i sammenligning med normal udspredningsmodus fortrinsvis anvendes en reduceret samlet mængde granulatmateriale.

3. Fremgangsmåde ifølge krav 2,

kendetegnet ved, at udspredningen af granulatmaterialet, i mellemste udspredningsmodus, finder sted via begge udspredningsskiver (12a, 12b) i landbrugsspredemaskinen (10).

4. Fremgangsmåde ifølge krav 2 eller 3,

kendetegnet ved, at der sammenlignet med normal udspredningsmodus i den mellemste udspredningsmodus anvendes en samlet mængde granulatmateriale, som er reduceret med 25 procent.

5. Fremgangsmåde ifølge krav 2, 3 eller 4,

kendetegnet ved, at granulatmaterialets tilførselspunkt på udspredningsskiven (12a) i landbrugsspredemaskinen (10), hvor udspredningsskiven (12a) vender væk fra grænsen (102) for det udnyttede landbrugsareal (100), og/eller granulatmaterialets tilførselspunkt på udspredningsskiven (12b) i landbrugsspredemaskinen (10), hvor udspredningsskiven (12b) vender hen imod grænsen (102) for det udnyttede landbrugsareal (100), i mellemste udspredningsmodus, og granulatmaterialets tilførselspunkt på udspredningsskiven (12a, 12b) i landbrugsspredemaskinen (10) er identiske i normal udspredningsmodus.

6. Fremgangsmåde ifølge krav 2, 3, 4 eller 5,

kendetegnet ved, at indergrænsekøresporets afstand (116) fra grænsen (102) for det udnyttede landbrugsareal (100) svarer til halvdelen af arbejdsbredden

7. Fremgangsmåde ifølge krav 1,

kendetegnet ved, at udspredningen af granulatmaterialet efter kørsel gennem det grænsenære område udelukkende finder sted i grænseudspredningsmodus.

8. Fremgangsmåde ifølge krav 7,

kendetegnet ved, at der, i grænseudspredningsmodus, i sammenligning med normal udspredningsmodus anvendes en samlet mængde granulatmateriale, som er reduceret med 50 procent.

9. Fremgangsmåde ifølge et hvilket som helst af de foregående krav,

kendetegnet ved, at der, i grænseudspredningsmodus, i sammenligning med normal udspredningsmodus anvendes en samlet mængde granulatmateriale, som er reduceret med 75 procent.

10. Fremgangsmåde ifølge et hvilket som helst af de foregående krav,

kendetegnet ved, at granulatmaterialets tilførselspunkt på udspredningsskiven (12a) i landbrugsspredemaskinen (10), hvor udspredningsskiven (12a) vender væk fra grænsen (102) for det udnyttede landbrugsareal (100), i grænseudspredningsmodus, adskiller sig fra granulatmaterialets tilførselspunkt på udspredningsskiverne (12a, 12b) i landbrugsspredemaskinen (10) i normal udspredningsmodus.

11. Fremgangsmåde ifølge et hvilket som helst af de foregående krav,

kendetegnet ved, at ydergrænsekøresporets (106) afstand (118) fra grænsen (102) for det udnyttede landbrugsareal (100) er mindre end 10 meter, fortrinsvis mindre end 5 meter.

12. Fremgangsmåde ifølge et hvilket som helst af de foregående krav,

kendetegnet ved følgende trin:

– detektering af landbrugsspredemaskinens (10) position på det udnyttede landbrugsareal (100), især ved hjælp af et satellitunderstøttet positionsdetekteringssystem i landbrugsspredemaskinen (10); og fortrinsvis

– automatisk indstilling af den normale udspredningsmodus, grænseudspredningsmodus og/eller mellemste udspredningsmodus for landbrugsspredemaskinen (10) i afhængighed af landbrugsspredemaskinens (10) detekterede position.

13. Landbrugsspredemaskine (10), der har

– to udspredningsskiver (12a, 12b), som er anbragt ved siden af hinanden og kan drives i rotation;

– en grænsespredemaskine til omdirigering af mindst en del af det udkastede granulatmateriale; og

– en styreindretning, ved hjælp af hvilken der kan indstilles forskellige udspredningsmodi for landbrugsspredemaskinen (10);

kendetegnet ved, at landbrugsspredemaskinen (10) og styreindretningen er konfigureret til at udføre fremgangsmåden til udspredning af granulatmateriale ifølge et hvilket som helst af de foregående krav.

14. Landbrugsspredemaskine (10) ifølge krav 13, der endvidere omfatter:

– en doseringsindretning, ved hjælp af hvilken mængden af udkastet granulatmateriale kan indstilles; og/eller

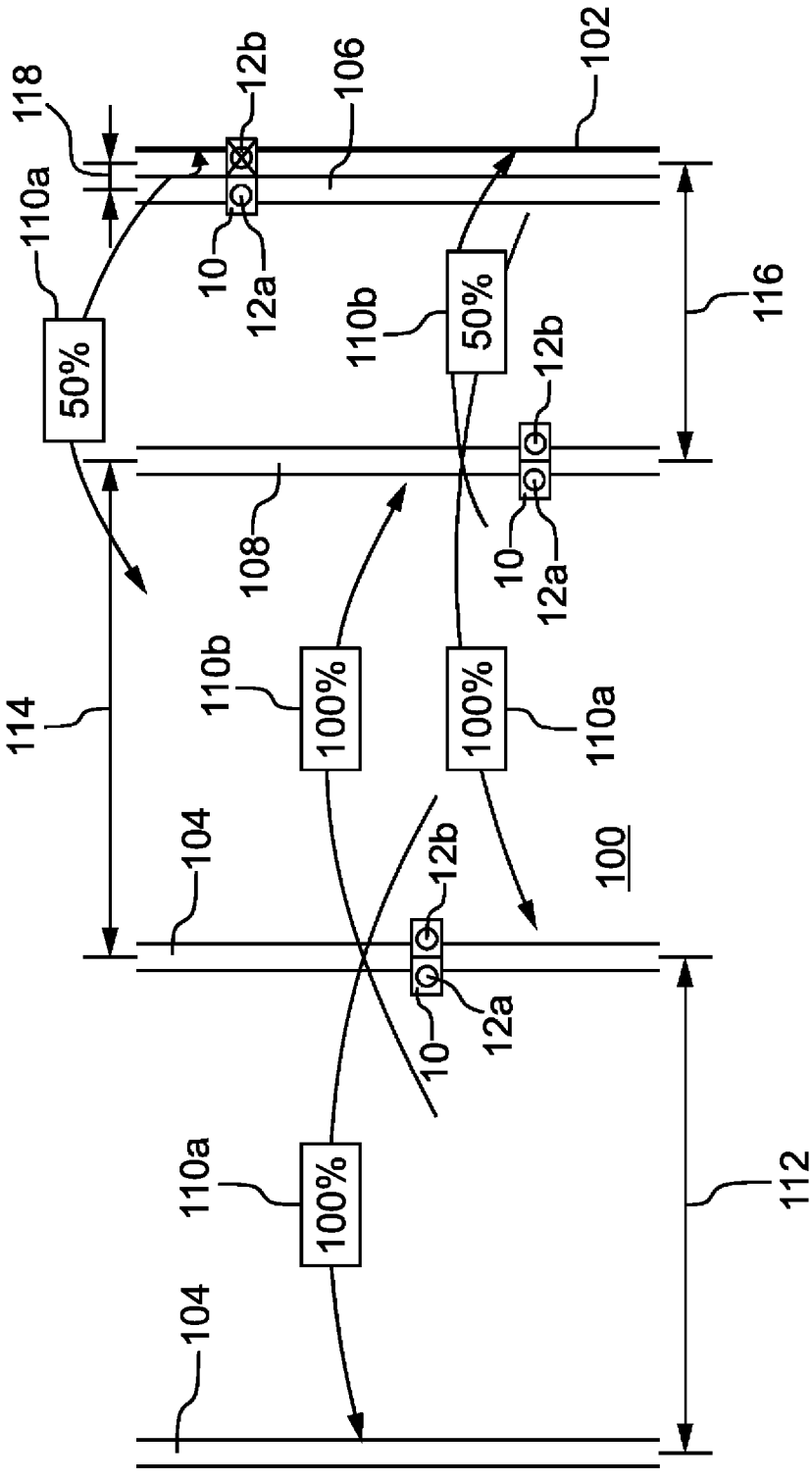
– et granulatmaterialeudspredningssystem, ved hjælp af hvilket granulatmaterialets tilførselspunkt på udspredningsskiverne (12a, 12b) kan indstilles;

hvor styreindretningen fortrinsvis er konfigureret til at styre doseringsindretningen og/eller granulatmaterialeudspredningssystemet i afhængighed af den indstillede udspredningsmodus.

15. Landbrugsspredemaskine (10) ifølge krav 13 eller 14, der endvidere omfatter:

– et positionsdetekteringssystem, især et satellitunderstøttet positionsdetekteringssystem, ved hjælp af hvilket landbrugsspredemaskinens (10) position på det udnyttede landbrugsareal (100) kan detekteres;

hvor styreindretningen er konfigureret til automatisk at indstille en udspredningsmodus i afhængighed af landbrugsspredemaskinens (10) detekterede position.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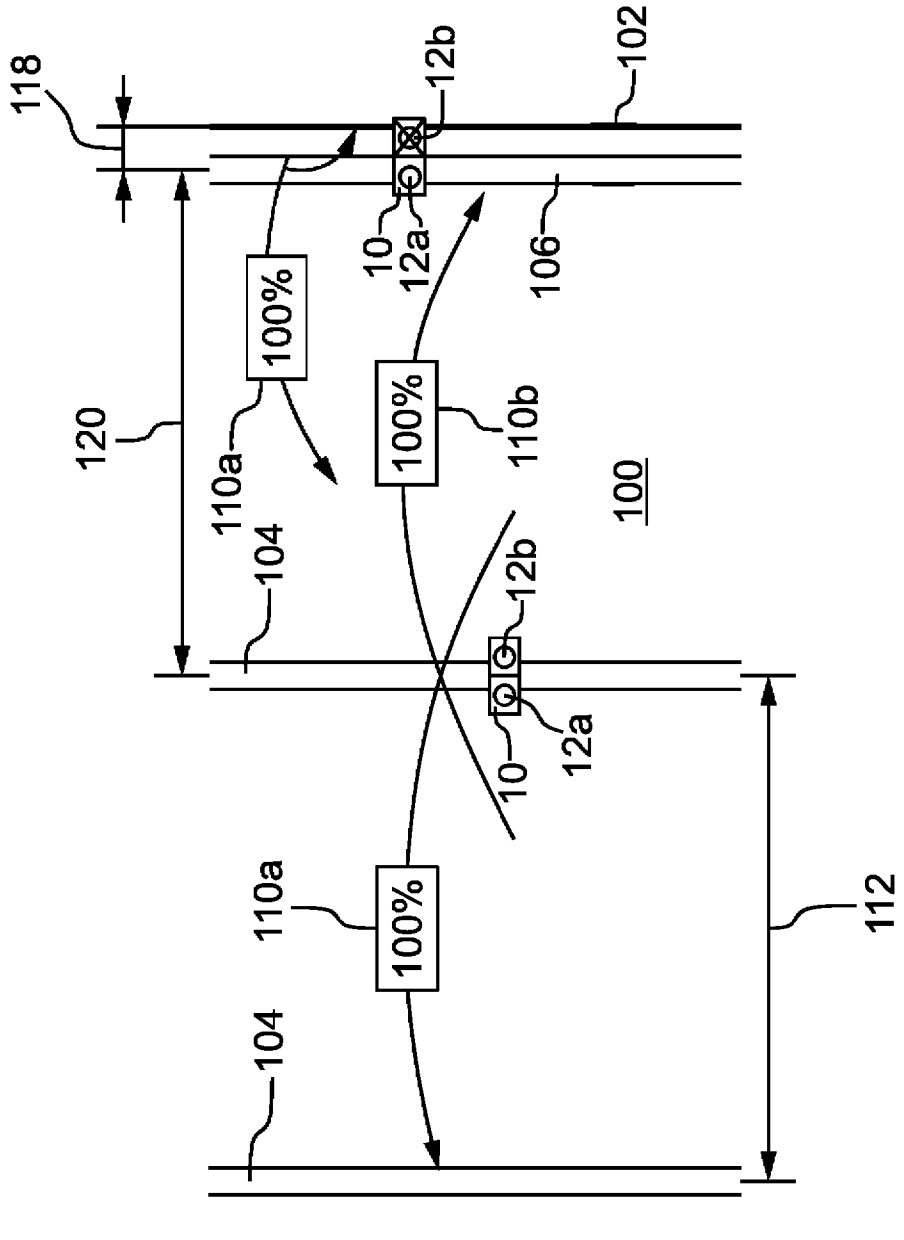
50%
12b
106
102
10
12a
110b
50%
116
12b
108
10
12a
114
110b
100%
100%
110a
104
12b
100
10
12a
110a
100%
112
104

Fig.1


118
12b
102
10
12a
106
100%
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110a
100%
110b
100
104
12b
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12a
110a
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112
104

Fig.2