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PATENT ASSIGNMENT COVER SHEET

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SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT

CONVEYING PARTY DATA

Name	Execution Date	
RANDAL ARNOLD	09/23/2014	
MATTHEW COPE	09/23/2014	
JUSTIN SCHARES	09/23/2014	
YUE YUN	09/23/2014	

RECEIVING PARTY DATA

Name:	PIONEER HI-BRED INTERNATIONAL, INC.
Street Address:	7100 NW 62ND AVENUE
Internal Address:	PO BOX 1014
City:	JOHNSTON
State/Country:	IOWA
Postal Code:	50131-1014

PROPERTY NUMBERS Total: 1

Property Type	Number
Application Number:	15507032

CORRESPONDENCE DATA

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ATTORNEY DOCKET NUMBER:	6450-US-PCT
NAME OF SUBMITTER:	STEVEN CALLISTEIN
SIGNATURE:	/Steven Callistein/
DATE SIGNED:	10/02/2019

Total Attachments: 6

PATENT REEL: 050606 FRAME: 0859



PATENT REEL: 050606 FRAME: 0860

WORLDWIDE ASSIGNMENT

For good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, and in fulfillment of a pre-existing obligation of assignment, we, RANDAL ARNOLD, MATTHEW COPE, JUSTIN SCHARES and YUE YUN at PIONEER HI-BRED INTERNATIONAL, INC., 7100 NW 62nd Avenue, Johnston, Iowa 50131-1014, the undersigned inventors have sold and assigned, and by these presents hereby sells and assigns, as indicated below, unto

PIONEER HI-BRED INTERNATIONAL, INC. 7100 NW 62nd Avenue P.O. Box 1014 Johnston, Iowa 50131-1014

its successors and assigns, the entire right, title and interest, so far as concerns the United States and the Territories and Possessions thereof and all foreign countries in and to the inventions in "SYSTEMS AND METHODS FOR GENOTYPING SEED COMPONENTS WHILE MAINTAINING VIABILITY", including all improvements to said invention ("Invention")

	executed concurrently herewith executed on US Serial No. 14/473,183 filed August 29, 2014 and; PCT Serial No. filed ,	
which o	claim(s) priority to Serial No, filed	

as set forth in this United States Patent Application

including all provisional, non-provisional, divisional, renewal, substitute, continuation, continuations-in-part, international and Convention applications based in whole or in part upon said Inventions or upon said Applications, and any and all Letters Patent and reissues and extensions of Letters Patent granted for said Inventions or upon said Applications and every priority right that is or may be predicated upon or arise from said Inventions, said Applications, and said Letters Patent; said Assignee being hereby authorized to file patent applications in any or all countries on any or all said Inventions in the name of the undersigned or in the name of said Assignee or otherwise as said Assignee may deem advisable, under the International Convention or otherwise; the Commissioner of Patents and Trademarks of the United States of America being hereby authorized to issue or transfer all said Letters Patent to said Assignee in accordance herewith; said assignment including the right to bring legal proceedings and obtain any relief to which the undersigned would have been entitled if this assignment had not been made, in respect of any infringements of the undersigned's rights in relation to said inventions, Applications and Letters Patent which occur before or after the date of this assignment; this assignment being under covenant, not only that full power to make the same is had by the undersigned, but also that such assigned right is not encumbered by any grant, license, or other right theretofore given, and that the undersigned will do all acts reasonably serving to ensure

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that the said Inventions, patent applications and Letters Patent shall be held and enjoyed by said Assignee as fully and entirely as the same could have been held and enjoyed by the undersigned if this assignment had not been made, and particularly to execute and deliver to said Assignee all lawful documents including petitions, specifications, oaths, assignments, invention disclaimers, and lawful affidavits in form and substance which may be requested by said Assignee, to furnish said Assignee with all facts relating to said Inventions or the history thereof and any and all documents, photographs, models, samples or other physical exhibits which may be of said Inventions, and to testify in any proceedings relating to said Inventions, patent applications, Letters Patent, and to bind our heirs, legal representatives, and assigns, promptly to communicate to said Assignee or its representatives any facts known to us relating to said Inventions, to testify in any interference or legal proceedings involving said Inventions, the location of that testimony to be in the country in which we reside or in the nearest country in which such testimony is legal should our country of residence prohibit such testimony, to execute any additional papers which may be requested to confirm the right of the Assignee, its representatives, successors or assigns to secure patent or similar protection for said Inventions and to vest in the Assignee complete title to said Inventions and Letters Patent, without further compensation, but at the expense of said Assignee, its successors, assigns and other legal representatives.

The undersigned hereby grant an authorized representative of Assignee the power to insert in this Assignment any further identification which may be necessary or desirable to comply with the rules of the U.S. Patent and Trademark Office or the Patent Office of any other country for recordation of this Assignment.

This assignment is deemed to be effective at least as early as of August 29, 2014

In Witness Whereof, I have <u>XPTEMBOR</u> , 2014.	executed this	Worldwide Assignment on the $\frac{33}{2}$ day of
RANDAL ARNOLD Name of Inventor		Signature of Inventor
State of 16WA		
County of POLK)	
who appeared before me and	said person acl	evidence that RANDAL ARNOLD is the person knowledged that he signed this instrument and act for the uses and purposes mentioned in the
.mstlitur.	Dated	9.23.14
S MCCOMPRIATE STATE OF THE STAT	Signature of Notary Public	Peg mcComba
	Printed Name	PEG MCCOMBS
JOWA Der Ter State Control of the Co	My appointme	nt expires9.8.16

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erson and n the

In Witness Whereof, I have	executed this \	Worldwide Assignment on the $\underline{\mathscr{S}}$ day o
JUSTIN SCHARES Name of Inventor		Signature of Inventor
State of)	
County of POLK)	
who appeared before me and	said person ackr	evidence that JUSTIN SCHARES is the persor nowledged that he signed this instrument and of for the uses and purposes mentioned in the
	Dated	9.83.14
	Signature of Notary Public _	Reg McCombe
	Printed Name _	PEG MCCOMBS
	My appointment	t expires9.8.16

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In Witness Whereof, I have SEPTEMBER, 2014.	executed this W	/orldwide As	signment on	the $\underline{\partial 3}$	day of
YUE YUN Name of Inventor		Signature c	fun_ of Inventor		
State of 16WA)				
County of POLK)				
I certify that I know or appeared before me and said acknowledged it to be his free instrument.	l person acknow	ledged that	he signed th	nis instrume	ent and
MCCO	Dated	9.23	3.14		
XARIAL O	Signature of Notary Public	Peg 1	nccomb	A. Carrier of the Control of the Con	
SA NAME OF THE PROPERTY OF THE	Printed Name	PEG,	MCCOMBS	3	
Minister September	My appointment	expires	9.8.16	<u> </u>	

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PATENT REEL: 050606 FRAME: 0866