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Seed: The Untold Story

By Unknown

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(calm and earthly strings music)

(seeds shake and rattle)

(soft and chill strings music)

When I first came here,
we are a hippy, back to
nature, self-sufficient thing.

We were watching too
many David Crockett,
Daniel Boone movies
and reading too much Thoreau.

(man sings song in
foreign language)

We were trying to seek
a different vision.

The first time I saw bean
collections and so on,
it was like woo, a
jewelry store, lit up,
and I've always just been
dazzled by diversity.

I don't like people that
are all straight, all gay,
all communist, all Christian,
let them all be there
and absolutely the
different kinds of seeds.

My great grandfather
was a farmer.

Looking through our
family photo album,
I just wish that I could like
somehow step into that photo,
say "Hi great grandma.

It's me, Billy,
"can I have some of these?"
because I know for a fact
that 90 something percent of
the things are now extinct.

They're my family,
and they're gone.

I have this horrible
vision someday
that the creator would look down

and he'd come look
around and say,
"Well, where is this,
well where did that go?
"I created this,
where did it go?
"How come it's not here?"
I see myself as Noah, not God.
Noah didn't get to decide
whether the crocodiles
came on the Ark or not,
or the black flies.
His job was to load 'em on,
ok, that's my job.
I have thousands of varieties
that I am maintaining,
People of the future, plant
breeders, and gardeners,
they will decide.
What the heck did
Will save that for?
I don't get to
make that decision.
My job is to keep
these all on the Ark,
keep them alive for
40 days and 40 nights
until the flood's over.
I may discover 10 years from now
that that seed will
be in huge demand
because it has in its genes
some resistance to some disease
which is only now evolving.
In many many cases,
what I've got is not
available anywhere else.
She's my sweetheart.
The year that I fail
to grow a variety
is the year it is lost to me.
And in some cases perhaps
lost to the planet,
some of these things are right

on the edge of extinction.

(calm and relaxing
strings music)

We have this collection
of several hundred
potatoes that are
purple or black skinned
and with yellow flesh,
some with a purple skin
hot pink flecks in them.
We have in the collection
a variety of lumpers.
Most of the Irish in the 1830s
and 40s were growing lumpers,
big yielder,
and none of those varieties
had any resistance
to late blight.

This is the potato that
killed a million Irishmen.
Because of the fact that
they were the one or two
or three varieties that
were totally vulnerable.
This is the variety
that explains why O
is the biggest section of the
South Boston phone directory.
Genetic diversity is the hedge
between us and global famine.
(soft, somber strings music)

The diversity in our seed
stocks is as endangered
as a panda or a golden eagle
or a polar bear right now.
We have the largest
seed shortage
in history.
(moves into calm ambient music)

It's this beautiful dance
between the plant
and the humans,
that find each other
and make a culture possible.

In Mesoamerica over
10,000 years ago,
corn found humans,
and humans found corn.
Corn really is this
beautiful co-creation
between plants and humans.
The domestication of corn
was centered in the
Oaxacan Valley of Mexico.
The incredible evolutionary
leaps that we took with corn
is a miracle.
It ignited this
sacred connection that
Corn seeds moved along the
entire spine of the Americas.
It became this revolution,
it became this new way of
being able to feed ourselves.
It's what fueled you from
a small tribe to an empire.
Spies and traders and
anyone who was around
and saw what it was doing
grabbed a handful and took off.
It took 4,700 years to
get it to the U.S. border.
Then about a thousand years ago,
corn is everywhere in what we
now call the United States.
(moves into soft
and melodic music)
[Rowen] Corn becomes
so elastic and adaptive
that now we see corn being
grown on every continent.
As keepers of the corn,
the corn has come up with
us through our migrations,
sustaining us.
(man speaks in a Native
American language)
Our first mothers

were the Blue Corn
and White Corn women.
This is my grandmother,
my grandfather,
my mom, my dad, my
brother, my sister,
my kids, my
grandkids and myself.
We all are one.
My father said "Son,
"never, never let
go of the corn.
"When I pass on,
"carry on the way of the corn."
I've always been a
farmer all my life.
From the day that
I can remember,
I was out there with
my grandparents,
my uncles and my father.
The spiritual people
gave us the corn.
They say when the
corn hears you,
then they start dancing with
you with the leaves fluttering.
Crow, crow damage, but
we still bring it in.
Everything is brought in.
People are too attracted
to the big and beautiful.
But the Hopi woman
and man say that
even this little
one here is special,
because every corn
seed has life.
Everything is special.
And I'll plant these,
I'll plant this.
We don't throw them away.
We take care of them.
In the womb, human

people are seeds.
We see the seeds,
being planted into the
womb of the mother earth.
They may be calling me daddy
and say "Daddy, I'm glad I'm
here with you," you know,
'cause these are my children.
(seeds rattle softly in jar)
Indian people, we
talk in one language,
the language of the seeds.
The most important
thing in my heart
it's taking seeds
anywhere I can go.
My grandfather tell me one time,
"This is very
important for life,"
and he put me before he died,
before he died he put me,
full of the seeds in my hand
and he said this is life.
And put always in your pocket.
Because if you have
seeds in your pocket,
you can walk and eat the seeds
and if you have money,
you cannot eat the money.
This is gold! Seeds, they
are our own medicine.
When we have to eat, we give
a little bit to the earth.
I am working now for seven
years in Tesuque Pueblo.
We lost our seeds,
we lost our food.
Pero, when you losing the seeds,
you losing completely your
traditional ways of eating.
I bring some of the crops
to these Pueblo people.
Quinoa, Amaranth.
The lost crops of the Incas.

It's part of this prophecy,
the condor and the eagle.
Exchanging seeds,
exchanging knowledge.
In all these bags you see,
we have different
type of the seeds.
This trailer there
was not one seed.
Seven years
we fill up with our
work, with our sweat,
and this is food for the future.
These seeds,
they're not very happy
because they're one
on the top of the other one.
They are beginning to tell
us "We need a new house."
A place where they
can have a home,
like us.
(soft and calm flute music)
Native Seeds/SEARCH
is a seed bank.
(seeds crackle off husk)
Most of the seeds came to
us through Native Americans.
As modern creatures,
we're in debt to that.
They are the last
expression of these stewards
going back thousands of years
that took care of these things
and made sure that we got them.
I had somebody the other day
call this Fort Knox. (laughs)
There's just so
much wealth in here.
There's about two thousand
different varieties
of invaluable
agricultural crops.
All 38 generations,

all this energy comes
down into the seed,
you get to hold it and
then all the future
and the millions more that
can come out goes out.
And you are at that point
when you hold those seeds
in your hands.
Right here is the mother corn.
This is the ancient ancestor
from which all corn came.
And that's what we're losing.
I mean we just don't
have the time left again
on this small planet to
recreate all this stuff.
That's why it's so invaluable.
Once it's gone, it's gone.
Seeds are living embryos.
They do have a life span.
(calm but melancholy music)
We try to grow everything
out every 10 years,
that's why we have
the 60 acre farm here.
We are hugely vulnerable
with all of those seeds.
You think about crimes
against humanity,
blow up a seed bank in war.
(loud explosions)
It becomes an immediate
target to weaken a country.
(loud explosions)
When we invaded Iraq,
we destroyed that seed bank
and we destroyed that garden.
And we destroyed that repository
of the great ancient seeds
that had been collected
by that government
for the benefit of mankind.
(machine gun clanks and fires)

(bomb explodes)
(cannons explode)
(metal creaks)
During World War II,
Hitler was aiming to conquer
Nikolai Vavilov's seed
bank in Saint Petersburg.
And the people associated
with that seed bank
holed themselves
up in the building
and kept those seeds protected,
even though they were
starving to death
and missiles and bombs were
landing all around them.
(moves into soft and
relaxing strings music)
I remember gardening
with these little hands.
Now they have
gardens of their own
and children of their own.
If there's no one to
pass that seed onto,
that living link and
that living seed is lost.
These are grandpa's
Morning Glories,
the seed that started
the whole movement.
When we started Seed
Savers in the 70's,
we didn't have anything,
we just had an idea and a dream
so we had thousands of
beans in my living room.
It was now our responsibility
to keep all those
bean varieties alive
what we've saved over those
years is irreplaceable
and if we hadn't started then,
we would've lost a lot more.

It's always amazing to me
when I started out with
two varieties of seed
and now I'm here looking at
over 24,000 accessions of seed
that we're permanently
maintaining at the seed vault.
All of our seeds are in
air tight foil packs,
so they're not
maintaining any moisture.
We also store a backup
collection at the seed vault
off the coast of
Norway, at Svalbard.
Svalbard has been called
the doomsday seed vault.
The idea is that if one
of these asteroids hits,
and causes a tsunami that
wipes out part of the world
or there's catastrophic
cultural and economic collapse.
You know, we see all the seed
banks in the world looted,
just for food.
The idea was to have a backup,
like the ultimate
backup just in case
the seed bank is destroyed and
they need their seeds back.
But the problem with it is that
we think that we don't have
to worry about this now.
It gives a false
sense of security.
All the gene banks,
they're all arks.
Ultimately, life does
not go on in an ark.
I'm not confident
that any of us
Have got something
long term in place

that can weather the slings and
arrows of outrageous fortune
that might come our way
(rain pours intensely)
We're now facing
severity of climate change,
the most radical we've had
since the last ice age.
This is happening at
an unprecedented rate
and it's putting pressure on
the diversity of life forms.
You know this is the
driest they have seen
since 119 years.
The Golden state's drought
the worst in over 1000 years.
In northern New Mexico,
we have a series of
drier and drier years.
Normally, this time of the year,
we're going to get
ready for planting,
but there's not any moisture.
Usually, you'll hit a wet spot.
Lot of the animals begin to
feel the effects of the drought.
They consumed probably
a third of our corn
and all of our beans.
It's tough for everybody.
(calm but somber
woodwinds music)
Our corn is among
the few places
that is environmentally
adapted to drought.
The Hopi grow corn
with no irrigation.
All of our ceremonies
are for rain.
(drums beat in unison)
You petition the clouds
to come and bless us.

We say in our prayers,
may the cloud people come.
(thunder claps)
May the Cachina people come
and visit us and bring us rain.
May the corn grow up and
produce their young ones.
You never lose faith
in the cloud people.
This is a way that my
prayers have been answered.
One day,
our corn will become very, very
valuable to human survival.
I was very, very fortunate
when I was a child,
there was a fantastic tree.
My tree began from
a tiny little seed
and I spent hours and hours up
in the branches of that tree.
And how magic that it could
actually grow into a big tree.
That tree is still
in the garden today.
(moves into calm, upbeat music)
Seeds are so crafty.
There is a power, it's a magic.
To me it's magic.
It's a life force is so strong.
There are seeds
that rely on fire
There are seeds that tangle
up in the hair of an animal
They get carried for miles
There are seeds
that can't germinate
unless they pass through
the gut of an animal.
Darwin was amazed
that a seed grew
after it had been 21 hours
in the stomach of an owl.
A seed is a doorway

between the life
of the old plant
and its gift to the new plant.
Our teachers are the plants.
And they're teaching us
that they have to
sacrifice themselves
in order to be able
to give something
to the next generation.
It's a form of reincarnation.
(moves into serene
and calm violin music)
[Patrick] Come on in.
Come on in.
Hello Hello.
Come on in, welcome.
Oh my gosh.
Oh my gosh this is amazing!
Check it out, Check it out.
This is how we roll.
That's why they
call me the corn,
they call me the corn hippie.
Guys, This is unbelievable.
There's so much corn here,
I mean, right here in
these bags right here.
This one has 87
different kinds of corn
- from Urubama Vale.
- Oh my God.
This is from
the sacred valley.
It has to get certified
with the phytosanitary
with the Peruvian government.
And once we get it certified,
then we're ready to ship it
wherever we want to send it.
That's astounding.
Look at that fava.
For all the crazy people like
me who sit there at night

and look at bags of beans,
it leaves us a mystery.
This is so precious.
No one even has an idea
how much they look like jewels.
They look like polished
agates, look at this one.
It must be artistic
genius of nature
that allows this to happen.
(soft, relaxing strings music)
I've gotta sleep with this one!
When I was six years old,
my parents asked me what
I wanted for my birthday,
and I said, "Well
I want squash."
I didn't want a G.I. Joe
and I didn't want
a baseball bat,
I wanted squash.
And I wanted those because
I wanted to save the seeds
and grow 'em.
My seeds are my kitchen table.
My seeds are my
way of sharing food
with people all over the world.
I've been to over a
hundred countries,
collecting thousands
and thousands of seeds
Here from Bolivia, looking
like a speckled Robin's egg
This bean here from Tanzania.
One that's coming from Zimbabwe.
A variety raised by the
West Virginia hillbillies.
It's exquisitely sculptured seed
of a trichosanthes
gourd from Vietnam,
The seed is a time capsule.
It's preserving
things from the past

but it's also bringing
things for the future.
And this is, uh.
I feel I have an
obligation to the world,
whether that's
unbalanced or not,
to bring this appreciation
to as big a swath of
humanity as possible.
This tiny little skinny tree
with really large leaves
is in the cacao family,
same plants that
produce chocolate.
And this is just a
distant relative of cacao
that still hasn't
been commercialized.
What if there's all kinds
of other seeds in nature
that have the potential
for food production?
Way down there.
Feel the end of it?
Yeah.

[Man With Scarf]

Can you hold him?

This is what we
just harvested.

(soft, relaxing strings music)

[Patrick] You know that these,
these have been known to
make grown men scream.

They say that you can have
a fever for several days
if they bite.

[Jason] 'Kay, this
is called Pietrina.

And it's for being
used on cuts and sores
and almost has the
look of iodine.

There's about 300,000 species

of plants on the planet.
We come down to 30,000
different edible plants,
You put 'em in your mouth
and just kinda suck on them.
120 are used on a
really regular basis
and most of humanity
subsists on a mere 10.
Beans, corn,
wheat, barley and rice.
Virtually nothing compared
to the bigger picture.
We should put
particular attention
to the seeds of wild plants
and figure out how we can
get those into cultivation
because they're part of
the biodiversity heritage
that will feed the world.
Pick 'em out of
there, Patrick.
[Cameraman]
There's a good one?
So we're getting a meal on
a wild plant here, dali dali,
which is one of the finest
roots in the world to eat.
Top chefs would go
crazy over dali dali,
absolutely crazy over it.
So why don't we grow it more?
[Jason] Back in 1700s,
Thomas Jefferson wanted to
get seeds of risotto rice,
And it was thanks to slyness
that he was able to carry out
some of this contraband seed
and raise it near
Monticello in the new world.
To feed this
expanding continent
that immigrants

were streaming into,
we needed a diversification
of food crops.
In the 1890s,
over a billion packets of
seed were distributed for free
to farmers around the country.
The American Seed
Trade Association
hired the very first lobbyist
to stop the federal "seed
giveaway" as they called it.
They saw seed as a commodity,
something that could be
quantified, measured,
bought, sold, and
traded on stock markets,
just a number on a spreadsheet.
By 1924, the federal government
seed program would cease.
These great
industrialists said
"The only way we can
really make profit
"on American agriculture
is to invent a seed
"that they can't save."
And that gave birth to
the hybrid seed industry.
Hybrids were bigger and
better and produces more.
Success is yield.
Hybrid companies
fueled that fever
to get the biggest and the best.
Corn contests was rampant
throughout the midwest.
You were measured not by how
many times you went to church,
it was how good
of corn you grew.
Everybody was winning
that had hybrid corn!
If you save the seeds from

a hybrid and plant it again,
you get what I call
"Mr. Toad's Wild Ride".
Recessive genes that were
hidden in the parents
express themselves again.
This is like the grandparents,
the grandkids start coming out
with all sorts of weird traits.
A little more like the mom,
a little more like the dad,
like old uncle Harry.
Farmers took it for granted
that we go to a shelf in
a store to buy our seeds.
A profound change 'cause seed
is the beginning of all of it.
If you're relying on
someone else for your seed,
then it's like you're
relying for someone else
on your soul or something.
This is like this is
where it all starts.
To not control that part of it
is a major abdication of
control and responsibility,
and yet we did it wholesale.
It destroyed the
natural seed banks
and the seed practices
of the farmers.
(exhilarating but
melancholy music)
Hybrid corn was the atom
bomb of agriculture.
(bomb rumbles and explodes)
Right after the
Second World War,
the Green Revolution
starts in Mexico.
When you hear about
the Green Revolution,
people sometimes think,

well you know that's
about windmills
and tofu powered sandals
or whatever it is.
The Green in the
Green Revolution
was never about
environmental consciousness.
The Green was meant to be the
opposite of a red revolution.
The visions of the
Rockefeller Foundation
kicked off the Green Revolution.
To provide cheap food,
so that people would
remain capitalism
and would not riot
and become communist.
This is about developing
kinds of seed that matter
for large scale commercial
farmers wherever they are.
The Green Revolution was taking
this rich knowledge
of peasant farming
that evolve over millennia
and tossing into the
dustbin of history,
replacing it with modern
industrial agriculture.
All of sudden,
men in white coats
become the champions
and the sole arbiters of
knowledge about seeds globally.
Seeds of the green revolution,
what are called the
miracles varieties.
They were bred for
taking up more chemicals.
The hungry industry
of war chemicals
wanted to deploy these
chemicals as agrochemicals,

trying to push chemicals
into agriculture.
90% of the seed that
we use to grow our food,
is owned by chemical companies,
by pesticide and by
pharmaceutical companies.
Now there's a huge
conflict of interest.
When the chemical
companies own the seeds,
they not only want you dependent
on the seed as a farmer,
but they also want you
dependent on their chemicals.
We use 80 million pounds
a year of Atrazine,
just in the U.S.
Atrazine's demasculinizing
frogs and fish,
it can completely cause males
to develop into females.
Atrazine leads to
promoting breast cancer.
It's associated with
miscarriages and birth defects.
We should've learned this
lesson way back with DDT.
And we're just learning
it over and over
and over and over
and over again.
The big concerns are Cancers
that pesticides are
associated with.
My whole entry into this
area was because of Atrazine.
The actual manufacturer
hired me to look at Atrazine.
Novartis told me
I couldn't talk to
people about my research.
I couldn't publish it
and I couldn't write it

and I thought, what do you mean?
Then they started trying
to manipulate data.
And that's when I realized,
I've helped the
chemical industry
keep this chemical in the
market that I know is bad.
And go home to my wife and kids
and go "Oh, guess
what I did today."
I did a study that
confused all the sciences
and now people don't know
that this chemical's bad.
Novartis and Syngenta
spent millions fighting me.
And when you look Novartis
and Syngenta's strategy,
the first thing that they
say is discredit Hayes.
They couldn't prove
my science was bad.
They wrote down a
checklist of things
they were going to do to me,
to hurt my students,
to investigate my wife.
They actually wrote it down!
The first page in the
secret spy evil handbook
is don't write it down
or you eat it or it
self destruct, right?
I do everything I can in
a position that I'm in.
But you know what some
of the dangers are,
being an academic and
speaking out for what's right.
We all have to do it.
(waves crashing calmly)
(soft, relaxing music)
We live in the most self

sustainable place on earth.
We can grow any plant
from Kakela to Hanalei.
It's such a cycle
of life around here
with the ocean and the land.
Hawaiians knew from
the beginning of time.
Our whole world revolves
around Aloha A'ina,
giving back to the land
because the land gives to us.
Native Hawaiians have this
incredible agricultural system
able to sustain three
times today's population.
In the 1800s, plantation
agriculture happened in Hawaii,
and what you see is
private land ownership
happening in Hawaii.
(moves into calm
and serene music)
The original missionary families
are still the primary
private landowners.
The descendants of the
original missionaries
open up the first
sugar cane plantations.
The last sugar cane mill
on this island closed down
eight years ago.
And in its place biotech
chemical seed companies came in
and took over agriculture.
They say sugar ruled
Hawaii, sugar was king.
Well, now I would say
the biotech industry,
these chemical companies
are king in Hawaii.
(sings in Hawaiian)
I live in a community

that consists of
pure Native Hawaiian
native speakers.
I have waited for an
opportunity to own my own home.
And not just own my own home,
but a space as a single
mother to raise my children.
Many Hawaiians die waiting
for their opportunity
at an Hawaiian homestead.
I moved out here and at the
time sugar was just moving out
and the fields around
us were fallow.
I started to see
different fields pop up
that I've never seen before.
It alarmed me.
I had no idea what was,
what was happening,
what was taking
the place of sugar.
Then I started to experience
very bad allergies,
migraines and illnesses,
just not being able
to get over colds.
My doctor said, "Oh you have
full blown adult asthma."
What I started to see
that the farmers were
spraying pesticides.
(moves into calm
but somber music)
They are spraying things at
night while we are sleeping.
My two daughters wake up with
blood-soaked pillows.
There's hundreds and
hundreds of acres
where these chemical
corporations test their seed.
18 tons of restricted

pesticides being dumped,
right next to schools
and neighborhoods.
I'm a teacher at Waimea
Canyon Middle School
for the past 18 years.
There's ag lands
adjacent to our campus.
It is literally 100 yards
up wind from our school.
That's the field that
they were spraying
and we can actually
feel the mists.
I contacted Syngenta and said
we believe that
drift is occurring.
During PE,
a cloud of gases came over them
and kids just started dropping.
(car horn honks)
There was chaos on
campus, it was horrific.
(emergency vehicle
sirens blare out)
There wasn't enough
room in the health room.
About 140 children were
seeking assistance.
There was this effort by
administrators and politicians
to whitewash it over,
and immediately
in the newspaper,
you know, school evacuated
because of stink weed,
and that became the
specious explanation,
that became the story.
Teachers came
together and stood up.
"Stop poisoning our children".
Monsanto, Dow, Dupont,
and Hawaii and elsewhere,

they've got a blank
check to experiment
with any chemical they
want on these test plots.
You've got the most
toxic insecticides
by the U.S. Department
of Agriculture.
(calm but serious strings music)
The seed companies,
the chemical companies,
especially Monsanto,
use every means of control
to manipulate our government
and other governments.
They pour huge amounts of
money into political campaigns.
They pour huge amounts
of money into lobbying.
They have many of their
own people embedded
in the key decision making
roles in the U.S. Government.
In 1992,
the approval of genetically
engineered crops
was done by Michael Taylor,
who was a lawyer for Monsanto
and went right from Monsanto
to working for the government.
Tom Vilsack was named
the Biotechnology
Industrial Organization's
governor of the year.
His law firm defended
Monsanto in the Supreme Court
and he became the
Secretary of Agriculture.
Here you have somebody
who's in control
of agricultural policy,
absolutely linked to the hip
to the biotechnology industry
and to Monsanto's interests

The revolving door between
Monsanto and government
is going to fast,
it's almost dizzying.
The corporations,
they said we wanna
really own these seeds.
We want patents on life.
It was fast tracked
to the Supreme Court.
It was a five-four decision
with Clarence Thomas,
in the lead of the five,
saying "Yes, you can patent
seeds, you can patent life."
Very few people know,
but Clarence Thomas
was a Monsanto lawyer.
When I first heard about
the idea of patenting a seed,
or any kind of plant,
I was absolutely
horrified and I thought,
surely that'll never be allowed.
You can't own nature.
(soft and calm violin music)
Under section 101
of the Patent Act,
which defines what can be
patented in the United States,
you can only patent a
machine, a manufacture,
or an inventor's
composition of matter.
And I fail to see how a
seed can be either of those.
Monsanto takes one gene out
of tens of thousands of genes,
changes that, and says "No, no,
now we own the whole plant."
It's one of the most
extraordinary giveaways,
giving corporations the
natural reproduction

of all life forms,
saying you can make a profit
on every one of
those reproductions.

So they don't just
own the seeds,
they own all of the
offspring of those seeds,
and patent them forever.

(calm and somber music)

The threat is there
by conglomerates to
legally saying they own it
because they're the
first to patent it.

We're the custodians of
this knowledge and the corn,
and how dare others
take it away.

Once these corns
get contaminated,
there's no way you
can breed it out.

The only safe thing to do
is actually incinerate,
y'know I wouldn't
feed it to animals,
I wouldn't compost it
because it's in the DNA,
it's an abuse to seeds and
to us as indigenous people
With the GMO seeds
that are out there.

We need to protect our seeds
We need to save our seeds
and we need to plant them
for the survival
of our communities
and survival of Earthmom.
Our people know that
where there is wild rice,
there are Anishnabe.

It is our most sacred food.
We have harvested this rice

for thousands of years.
This wild rice doesn't grow
anywhere else in the world.
We engaged in a battle
with the corporations
and with the University
of Minnesota.
(moves into calm but
intense drum music)
The University of Minnesota
wanted to genetically
engineer wild rice.
We were very concerned
That would potentially
contaminate our wild rice
so we fought them.
The first opposition
witness out of the gate
for three years in
a row was Monsanto.
They came out every
time we testified.
They said if the Ojibwe
were able to stop
the genetic engineering
of wild rice,
it would send a chilling
message to the biotech industry.
When they go and take that
dignity of that food from you
and turn it into something
else it is offensive,
it hurts our people, it
hurts us economically,
and it hurts us spiritually.
Wild should mean something.
And I would assume
that that would mean
not genetically engineered.
Genetically modified plants,
it's doing something which isn't
natural in the plant world.
(calm but exciting
strings music)

Genes from a completely
different species
are being introduced
into these plants.
And the plant fights.
The plant is not happy to
receive an alien species.
You can put a pig in
a room with a tomato
and you can turn
the lights down low
and play some nice music
and you serve some wine,
but no matter how hard you try,
you're not going to get the
pig to mate with a tomato.
But the genetic engineers
can take genes from the pig
and force it into the tomato.
They've taken genes from
spiders and put them into goats.
They've taken human genes and
put it into rice and corn.
They're eliminating the
natural species barriers
and in a sense playing God.
You shoot gold particles
laden with genes.
But it's a very
unreliable process,
so you have to also add
antibioresistance markers.
You also have to
add viral promoters.
And every genetically
engineered seed
is a bundle of bacteria,
toxins, viral promoters.
As we remove the
barriers between species,
mixing these genes and viruses,
the threshold also gets broken
for the spread of new
infectious diseases.

A genetically modified seed
is the sorcerer's apprentice.
We have the capacity to
start all this stuff,
but we don't have the
capacity to stop it,
and when we
manipulate a species,
that is a kind of hubris
that we will pay for.
You can't see the difference
between genetically
engineered corn
and non-genetically
engineered corn.
This is not seeable
by a consumer.
Independent scientists were
beginning to see indications
that consuming genetically
engineered foods
could have kidney
and liver damage.
We are seeing possible
reproductive issues
in laboratory animals,
these are peer reviewed science
and now we're beginning
to see problems
that could come from them.
(moves into upbeat
and rhythmic music)
Wheat was the holy grail
for companies like Monsanto.
If they could have had all
the wheat in the United States
be genetically engineered,
that was really the holy grail.
Monsanto spent
ten years developing
the genetic modified wheat.
Wheat farmers decided
we did not want them
to release a genetically

modified wheat.
We said "No, we're
not doing that."
We don't have to take
the chance to fool
with the genetic
modified plants.
We said "Nope, we don't want
it," and now we've got it.
We thought that this
had been put to bed.
We thought those wheat
seeds had been destroyed.
Apparently not.
The Department of Agriculture
had told us don't worry,
we can keep these
seed trials confined
and time and time again
they have failed to do so,
and they have escaped.
Once you take that stuff
out of the laboratory,
there's a thousand
things that can go wrong
that lets that seed get away.
As far as a duck can
fly, they eat seed,
and they excrete that seed,
and seed grows in place
where it wasn't intended.
You can't pull it back.
You can't put the
toothpaste back in the tube.
International wheat
markets shut down for months.
That cost farmers hundreds
of millions of dollars.
USDA opened an investigation.
They've never been
able to discover
how the genetically
engineered wheat
got in the farmer's field.

We're fooling with Mother
Nature in a way that,
quite frankly,
may end up not being
near as rosy of a panacea
as these seed companies
want to point out.
If our wheat is contaminated,
I'm out of business.
(calm but worrying guitar music)
In 1998,
we were just beginning
harvesting canola
in the middle of August.
My neighbor had grown GMO canola
and our fields
were contaminated.
And a bus station phoned up
and I thought that's unusual
and they said there's
a parcel here for you.
Later on that evening, open it,
here's a lawsuit from Monsanto,
and I didn't think much of it!
What's this patent infringement?
Didn't even know what that was.
Our family lawyer looked
at me and he says,
"Percy, I think
you're in trouble."
I said "What for?"
Well, he said,
"They're charging you that
you have their GMO seeds,"
and I said, "What
are GMO seeds?"
The judge's stated
that it does not matter
how you're contaminated.
You violate the patent and
you no longer own your seeds.
That right should never be
taken away from a farmer.
You are taking seed

that has been there
for thousands of years
and put a patent on it
and say you own it.
Basically it's robbery.
To me, that's really a
violation of human rights.
Henry Kissinger said
"If you want to control the
country, control the oil,
"if you want to control the
people, control the food."
Vandana Shiva says, "If you
want to control the food,
"control the seed."
(moves into soft,
foreboding music)
When seed started to
become a patented product
sold by corporations,
you destroy seed freedom.
When a company as powerful
as Monsanto enters a country,
it starts to control that
country's decision making.
Monsanto started to buy
up Indian seed companies.
60 Indian companies can
only sell Monsanto seeds.
The companies will take
video vans into the villages.
They had every Indian epic.
And they would, very
cleverly, sell the seeds.
So Hanuman is carrying
white gold seeds
of Monsanto.
So when Hanuman comes as
a salesman of Monsanto,
they believe in them.
So that was the first trap
through which they took over.
Then they also told the farmer
"Why are you using these

old seeds? Sell them to us."
A farmer has always had seed,
and a farmer would say
"Oh, they're giving me
some money for the seed.
"I'll just get it from
my neighbor tomorrow."
Not realizing the neighbor
has also been approached
in the same way,
and the next village,
and the next village.
In one season,
this thing they called
seed replacement
has destroyed the entire
native seed supply.
You have a seed
dictatorship established,
then the farmer can't get out.
Farmers will be forced to come
back to buy seed every year.
We could have very,
very large scale famine.
But unlike all famines of
the past, no resurrection,
because every famine of the
past, seed was always there.
This time's famine will
be based on a seed famine.
What this free-trade
system has given us is
instead of seed being "Of
the farmers, by the farmers,
"for the farmers
and all citizens,"
it is now seed "For
the corporations,
"of the corporations".
NAFTA will create the
world's largest trade zone,
and create 200,00
jobs in this country.
When NAFTA was introduced

between United
States and Mexico,
all of the sudden
the US was selling
subsidized corn into Mexico
that was below the cost
of production in Mexico,
forcing a couple million
farmers off their land.
(soft, somber strings music)
We planted the seeds
of that migration.
A lot of that corn is
contaminated with transgenics.
We are destroying the basis
of the world's agriculture.
(moves into simple
and peaceful music)
Oaxaca is the region of Mexico
where subsistence
agriculture holds on.
The subsistence agriculture
is slowly being phased out.
But if that agriculture is gone,
we have lost that
resources for our future.
Our diet has been our plants,
our seeds,
our fruits.
Our challenge is to
preserve native seeds
Otherwise it will
be very difficult
for our communities to survive.
(women sings in Spanish)
(church bells chime)
(moves into soft,
festive guitar music)
Itanoni is a
doorway to the world
of corn that exists in
the grandpa's villages.
(waiter speaks in Spanish)
In Mexico the

traditional tortilleras
are disappearing.
I work with farmers to
create the market they need.
When we have extra corn
we sell to the
restaurant Itanoni.
We're getting famous
because of the corn.
[Amado] This treasure
can only be preserved
by reproducing it.
(calm and relaxing sitar music)
My name is Suman Khulko.
I live in a small village
of Ranchi in Eastern India.
I am the only daughter.
My father is handicapped.
When I was young
my grandparents had passed away.
I would visit a wise
woman who was blind.
She taught me about
traditional seeds,
so I started collecting seeds.
My mother had no
interest in saving seeds,
so I would hide the
seeds from my mother.
We were told if
we used chemicals
our farming would be better.
My brother saw farmers
using chemicals
and making more money.
He said to me, "We will
do chemical farming."
I said, "Don't use chemicals."
But he didn't listen.
Our family will drown in debt.
It hurt to the core of my heart.
My uncle took a
loan from the bank,
bought seeds,

and planted them.
The rains did not come.
His mind stopped working.
He went completely mad.
He committed suicide
by drinking the
chemical pesticide.
When I heard what my uncle did,
I started thinking
of my brother.
[Brother] We are
short on money.
How will we arrange
for this money?
Our hybrid seeds got
a fungus disease.
These hybrid seeds are
not useful for next year.
[Vandana] We have lost
270,000 farmers to suicide.
(somber orchestra music)
Pioneer Dupont
and DOW chemical,
they have all the acreage leased
all the way up
from the mountains,
all the way down to the ocean,
and this is where all the
experimentation goes on.
This is the dust
that's blowing in the fields.
It blows over the cliffs
and into our homes
and we breathe this stuff.
The neighborhood is filled with
people who have passed away
of some form of cancer.
So many people back
here have died.
My wife, she got breast
cancer. She almost died.
We just could not gamble with
her life. She had to leave.
Then I started getting

worse and worse.
I would gasp for air.
If I stay here much
longer, I might die.
I have to move.
I'm getting weaker and
weaker and I can feel it,
that's the warning sign for me.
These chemical
corporations occupy lands
that are considered very
sacred to native Hawaiians.
Our land, our aina, and
everything that comes from it,
that is our ancestor.
As a native
Hawaiian, it's, well,
it's a disgrace to our culture.
There really will be nothing
left for our children
if no one is
willing to speak up.
The future of Hawaii
is all at stake.
Everything I love
is being threatened.
(protesters speak in Hawaiian)
I'm fighting for
the whole island.
Say something, or die.
(festive music)
Six thousand people, there out
of the love in their heart.
For our children, for
our land, for our ocean.
I met with the
chemical companies.
They would say
"No, we are not experimenting
with pesticides."
And they would tell
me, "This is safe,
"there's nothing wrong
with this stuff."

Could you tell me
what you are spraying?
And they refused to tell me.
The more these companies
would lie to me,
I had to do something.
And that's when we started
piecing Bill 2491 together.
To get disclosure.
Could any of you disclose to me
the amount of general used
pesticide that you use
on an annual basis?
With all due respect, I
asked you an hour ago,
if you would tell me today
how much general use
pesticide you are using
and you said no
with your silence.
I would say that I don't
think I would want to comply
with the bill as is.
My second son
here, Pa' akatanao,
was born with an extremely
rare heart defect.
Because our son was dying,
his heart unable to pump his
own blood through his body
and endured nine surgeries
during those months.
All I know is that
while pregnant,
I took every precaution to grow
a healthy baby inside of me.
By not passing this bill,
you are telling me that I
don't have the right to know.
If I had known,
I would have chosen to
not expose my unborn child
as I innocently worked day
in and day out in Kai'kaha.

If I seem a little emotional,
it's because it
really hits home to me
speaking on behalf
of unborn son.
My son has a condition
called gastroschisis,
basically the stomach
is on the outside.
I don't blame anybody but I
just want to stop the poisoning!
I have a baby in the world
that has to get cut
open right away.
Consider this,
that something might be
wrong on this island, 'kay?
Something might be wrong 'cause
children don't deserve this.
(speaks in Hawaiian)
The trust is gone
for these companies.
The trust is gone.
And I don't know how they are
going to gain the trust back,
other than backing this bill
and working with
the communities, you
And you know, like
I said before,
It's time to put human
health over corporate wealth.
They are suing
the county of Kauai
for the right to spray
poisons next to schools,
and these are the largest
companies in the world.
So we're gonna
have a huge battle.
[Protesters] OMG, GMO,
people have the right to know!
OMG, GMO, people have
the right to know!

OMG, GMO, people have
the right to know!
This is a historic battle.
They're fighting for a profit,
we're fighting for our lives,
(audience applauds)
and those who fight for
their lives do not give up,
do not let down, never say no.
[Protestors] GMO has got to go
because we need to know!
GMO has got to go!
No one said give
me GM food, anywhere.
This has never been voted
for by any community
anywhere in the world.
The reason Americans are
being condemned to eat GM food
is they've been denied
the right to know.
(exciting and festive music)
64 countries around the world
have some form of labeling
of genetically engineered foods.
The United States does not.
Monsanto and the other companies
are so frightened of labeling
because once people
have a choice,
why would they choose a product
that only offers them
risks and no benefits?
(calm but suspenseful music)
I started Navdanya in 1987.
I named it Navdanya
which means nine seeds,
but also means the new gift.
Oh look at the birds.
Going above you.
I took inspiration from Gandhi.
Gandhi had dealt with
a smaller imperialism
of the British by taking

out the spinning wheel.
He said "We will be free,
we will spin our own cloth."
And I said we will
save our own seed.
The seed will be the
spinning wheel of our times.
When I heard these companies
talk about patenting seed.
We will refuse to obey laws
that force us to accept
GMOs and patents.
We have launched a
campaign this year
for a global alliance
for seed freedom.
We need to protect the
diversity, integrity,
and freedom of life.
Give seed its own freedom
so that we as humans
can have our freedom
and the work we do for Navdanya
is to encourage farmers to
grow enough for themselves,
to bring respect back
for their own seed,
for their own farming.
O Mother Earth,
my respects for you.
You have provided us
food. Hail Mother Earth.
Our community seed banks
are both the networks
of the farmers
as well as the
distribution network
for moving seed
wherever it's needed.
More than 110 community
seed banks have started.
If there's a drought, getting
drought-resistant seed.
If there's a flood, getting

flood-resistant seed.
So these are seeds of hope.
These are seeds that do
not lock you into debt.
And we are training the young
people to spread seed saving.
Because that freedom is tied-up
to our duty to the planet
and our duty to the future.
I found out about Navdanya
on the way to school.
Vandana Shiva was talking
about organic farming.
I then came to Navdanya,
I learned how I can
make our farming better.
So it will be beneficial for us
and be healthy for us.
[Vandana] For the farmer,
they're going to honor the
land and make it beautiful,
and you can only make it
beautiful through biodiversity,
and only when we have
the seeds of biodiversity
will the landscape be beautiful.
(people applaud and laugh)
Y'know, there's that Garth
Brook's song "The Rodeo".
Well for me,
the rodeo is going out
into the wilderness
and finding things to eat.
It's like an obsession
that never ends.
Big, huge treasure hunt.
(calm and soft strings music)
When people say "How do
we feed a hungry world?"
What about the wild things?
The devil's claw.
We don't wanna get the sap.
Holy Moly! This is a male plant!
So this baby is

pollinating somebody else,
let's see who it's pollinating!
Look at the little nara melons!
Look at them! I've
never seen them before!
I've been waiting
to get these seeds
for probably 15 years.
And you would not imagine
that this would grow out
in the desert.
We get just a few of these
growing in a few places,
it won't be but a couple of
years and the people themselves
will be able to start
growing their own.
So a seed in this case
is extremely precious.
And what does that mean,
it's worth as much as gold.
You get up there and rub and
I am going to hold this tight.
Get up and rub it.
You let the wind catch it.
We're getting them out though.
We did good.
Acanthosicyos naudinianus, it's
called the gemsbok cucumber,
and these are one of the
treasures of the desert.
It should be edible.
Now if they are green,
what I've heard is they're
gonna burn the crap
out of your mouth.
You gonna try the first
one? Do we have a spoon?
- Oh look at that.
- Okay.
Sweet?
[Friend] What's it taste like?
Tastes terrible.
Does it taste bad?

Yeah. (laughs)

(woman speaks in
foreign language)

So, they're cooking them.

That gets rid of
the hotness in it.

You gotta poke a hole in
them so they don't explode.

Look at that!

(soft and relaxed strings music)

They're the original
botanists, aren't they?

I'm nothing,
all I'm doing is
learning it in books
and wanting to find out about it
but they're knowing
everything about it.

It's bigger than
he said probably

It's a group effort
digging up this monster.

- Unbelievable.

- It's incredible.

(group cheers)

This is the
incredible marama bean,
Produces tubers
up to 500 pounds.

About ten pounds?

It is a future potential crop
unlike any other on the planet.

And how many other beans
do you know produce
a giant, giant sweet potato?

How many others
produce a giant cashew,
macadamia sized nut?

This is an amazing plant.

(group cheers and claps)

The people in the Kalahari
depend upon this for survival.

It doesn't need water for 3
years and it can still survive.

You can go back eons and be
like a hunter walking out here
when he was just surviving
with the elements.
Strange thing to get impressed
with but I'm impressed.
We do have a beautiful world,
and something like this to me
is just a marvel the
planet we live on.
(man sings in foreign language)
I don't suppose anyone's
up for the Merry Dwarves
are they?
We could try I suppose.
There's enough of us!
I don't know, okay.
Hi Ho cried the Merry Dwarfs.
And then bump, bump.
The timing is all important,
just like with seed saving.
Time is a big deal.
Alright, let's hear it now.
[Group] High ho
cried the merry dwarfs, dum dum.
It's off to the
woods we, dum, are.
We like to stay but
time is, dum dum, short.
I hope like the merry dwarfs.
Magnificent,
Magnificent, that was it!
You did it, right off like that!
Woo! Okay!
(upbeat strings music)
Saving seeds is a gas.
Seed saving is all about sex.
And humans are all
obsessed with sex,
even if it's rutabaga sex.
You can hire someone to
come fix your plumbing.
I'm sure we know for a fact
that you can hire someone

to make love to your
spouse, for example,
and they'll sure as hell do
a better job than you will,
but no somehow we feel like,
"Nah, I really want
to do that myself."
Some things are
just too important.
This is right up there with
making love to your spouse.
So this is the office where
all my stuff is stored.
I don't know quite
how many thousands
of varieties and samples
of seeds are here.
This is a horrible mess.
Uh, this is about as
good as it gets here.
I live in chaos
and this room is one of the
more chaotic parts of the house.
All of these boxes on top
are waiting to get refiled.
I never can seem to get enough.
I've tried to level
off in recent years
to something that I can handle.
Rutabagas, over here.
Sometimes thought that if the
house were to catch on fire
and I had to do something
very, very quickly,
hopefully I would
first make sure
that all the family
were all safely out,
but somehow, deep inside,
I'm afraid that I would
probably rush in here,
smash out the windows and
start throwing boxes of
seeds out to the firefighters

and hope that they understood
what to do with them,
don't turn the hoses
on them or something.
I have sweat a lot over
the things that I lose.
No one in the future can save
them, they'll already be lost.
I see no end, no end in sight,
except when I am cremated.
That concerns me sometimes,
who will take this over.
(calm and serene strings music)
It took six years
to save seeds.
I have to cultivate the
entire farm organically.
I said to my brother,
we need to save our
traditional seeds.
I was overjoyed when
my brother agreed.
I felt so happy,
my family agreed to
do organic farming.
(women sing in Hindi)
Whatever I have learned,
I want to spread that
in my entire region.
Suman emerged as a leader.
She came forward for
this noble purpose
to serve her community.
If another farmer
does not have the seed
then I can give it to him.
We can help each
other with our seeds.
(easygoing and
festive drum music)
(low rumbling)
Jack and the beanstalk
is a true story!
The idea we all laughed at,

that he would trade his
pig or his cow or whatever
for a handful of beans is like,
what a silly thing is that.
But if you think
about the potential
of the self replicating system
that's in your hand and what
it can potentially produce.
We should all trade
in everything we have
for a handful of beans.
One of our fairytales is
actually trying to teach us
that's unbelievably important.
(giant grumbles)
(soft and relaxing
strings music)
I woke up one night about
three o'clock in the morning,
I sat up straight
in my bed and I went
"Ah seed school! We
gotta teach this stuff."
We got to open up a space
and teach them what we know,
to having this
resilient fabric again.
I'm going back to the 10,000
year old way of doing it.
To have everybody, everywhere,
saving and storing and
sharing their own seeds
regionally, the way it
always has been done.
When we teach about seeds,
we rewrite ourselves back
into that evolutionary dance
between plants and humans.
We initiate a whole new
generation of people
who care for life.
It's the seeds asking
to be spoken for again.

As a Mohawk woman,
seeds embody the sense
of hope for the future
that we could create
something different,
a new paradigm for our children.
We have to make that
promise to the corn,
that we will nourish
ourselves from it
but we will also give back.
All of these seeds,
they are going to
move to his new house.
We have the, I would say, the
blessing of the great spirit,
of the mother earth.
All the protectors and
the spirits of this land
and they say you guys have
to finish the seed bank.
(calm and serene music)
We beginning to make the
impact on our pueblo,
in our community.
Stone by stone, mud by
mud we have this building.
All these seeds
they have memory.
They happy in this moment.
(moves into joyous
strings music)
The seed bank, it
represents life.
(group sings in
foreign language)
Those young men and women
are carrying on a tradition
of our community.
And I see the young people
happy and the corn is happy,
the birds are happy,
because that's who we are.
We grow a really

great variety of squash.
Archaeologists dug down and
they came upon a clay ball
that was about this big.
And in that clay ball,
they shook it and
they heard something.
They cracked it open and
it was a squash seed.
They carbon dated
it 800 years old.
And I always laugh
because I say white guys get
to name things all the time.
So I'm gonna name this one
and I call it Gete-Okosomin,
which means really
cool old squash.
(moves into sweet and
lighthearted strings music)
It's time for us to
take back that manna.
It's so important to get
back to our food source.
Take back that ability
to self-sustain
as our ancestors once did.
This food forest here,
could feed hundreds of people.
We could be the self-sustainable
epicenter of the world
and there's no
reason we can't be,
we can grow any fruit or
vegetable on these islands.
We planted 21
banana trees today,
as a team as a family, we
can accomplish anything.
And we went from
this much diversity,
took 10,000 years to create,
down to this pinch with
only four percent left,

and we're right here.

Right?

And so we're gonna,
we're waking up.

We're gonna do this
it's knowing that in
each individual seed
is the potential to
change it all back.

(seeds rattle)

(moves into soft
and melodic music)

In the heart of the
seed, there's a story

Waiting to be born

Our grandmothers breded,
our grandfathers breded

Kindered the ancient call

In the heart of the seed,

there's a story to read

In the heart of the seed

There a whole tribe to feed

Our sweet savers know it

Our fathers, they grow it

And from that seed we are born

Mother nature is essential

for ascension for the land

Granulations are essential

for ascension in our life

Old creation from our beings

is essential for us to thrive

Anticipation for our nations

is essential for our tribe

For our tribe

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